NOTICE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

N 8900.246

National Policy

Effective Date:
12/4/13

Cancellation Date:
12/4/14

SUBJ: OpSpec/MSpec/LOA B036, Class II Navigation Using Multiple Long-Range Navigation Systems (M-LRNS)

1. Purpose of This Notice. This notice amends Operations Specification (OpSpec)/Management Specification (MSpec)/Letter of Authorization (LOA) B036, Class II Navigation Using Multiple Long-Range Navigation Systems (M-LRNS), and clarifies guidance for Federal Aviation Administration (FAA) inspectors to authorize and issue OpSpec/MSpec/LOA B036 to operators conducting airplane operations under Title 14 of the Code of Federal Regulations (14 CFR) parts 91 subpart K (part 91K), 121, 121/135, 125 (including Letter of Deviation Authority (LODA), 125M operators), and 135. The sample templates contained in the notice appendices enable airplanes equipped with M-LRNS to qualify for Required Navigation Performance (RNP), RNP 10 and/or RNP 4 for operation in designated OpSpec areas. This notice amends B036 templates to accommodate Global Positioning System (GPS)/Global Navigation Satellite System (GNSS) and/or distance measuring equipment (DME)/DME automatic updating of the M-LRNS prior to entering and exiting Class II airspace.

2. Audience. The primary audience for this notice consists of FAA certificate-holding district offices (CHDO) and principal operations inspectors (POI) assigned to operators conducting airplane operations under parts 91K, 121, 125 (including LODA 125M operators), and 135. The secondary audience includes Flight Standards Service (AFS) divisions and branches in the regions and in headquarters (HQ).

3. Where You Can Find This Notice. You can find this notice on the MyFAA employee Web site at https://employees.faa.gov/tools_resources/orders_notices. Inspectors can access this notice through the Flight Standards Information Management System (FSIMS) at http://fsims.avs.faa.gov. Operators can find this notice on the FAA's Web site at http://fsims.faa.gov. This notice is available to the public at http://www.faa.gov/regulations_policies/orders_notices.

4. Background. A Special Area of Operations (SAO) conference was held in May 2012 to bring appropriate sections of FAA Order 8900.1, Flight Systems Information Management System (FSIMS), up to date. OpSpec/MSpec B036 revision was required because it made reference to aircrews following procedures in Advisory Circular (AC) 90-79, Recommended Practices and Procedures for the Use of Electronic Long-Range Navigation Equipment, which was cancelled on September 6, 1994. This notice amends the applicable templates to account for

GPS/GNSS and/or DME/DME updating of the M-LRNS prior to entering and exiting Class II airspace.

5. Guidance. The Flight Technologies and Procedures Division (AFS-400) developed this notice. This notice contains the following:

- The sample OpSpec B036 template in Appendix A applies to part 121.
- The sample OpSpec B036 template in Appendix B applies to part 121/135.
- The sample OpSpec B036 template in Appendix C applies to part 135.
- The sample OpSpec B036 template in Appendix D applies to part 125.
- The sample LOA B036 template in Appendix E applies to part 125M (LODA A125).
- The sample MSpec MB036 template in Appendix F applies to part 91K.

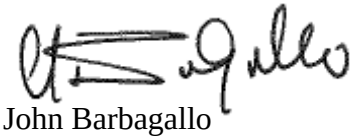
6. Action. Operators should review the changes to OpSpec/MSpec B036. Operators using GPS equipage and/or DME/DME automatic updating to conduct a gross error check may contact their POI to obtain the amended B036.

7. OpSpec/MSpec B036. Operators must incorporate guidance from the current editions of AC 91-70, Oceanic and International Operations, FAA Order 8400.12 Required Navigation Performance 10 (RNP 10) Operational Authorization, and/or FAA Order 8400.33, Procedures for Obtaining Authorization for Required Navigation Performance 4 (RNP 4) Oceanic and Remote Area Operations, into their flightcrew procedures and pilot training program.

a. International Operations. This OpSpec is not an authorization for international operations. Operators conducting international operations must contact their POI to obtain the appropriate OpSpec for their specific area of flight operations.

b. Usage of GNSS. Operators take note that AC 91-70 and Order 8400.33 address aircraft that use GNSS as primary navigation, including requirements for receiver autonomous integrity monitoring (RAIM) and fault detection and exclusion (FDE).

8. Disposition. We will incorporate the information in this notice into FSIMS before this notice expires. Direct questions concerning the information in this notice to the Performance Based Flight System Branch (AFS-470) at 202-385-4623.



John Barbagallo
Director, Flight Standards Service

Appendix A. Sample OpSpec B036, Class II Navigation Using Multiple Long-Range Navigation Systems (M-LRNS): 14 CFR Part 121

a. The certificate holder is authorized to conduct Class II navigation using Multiple Long-Range Navigation Systems (M-LRNS) only within the areas of en route operation where this paragraph is referenced in paragraph B050 of these operations specifications. Unless specifically authorized elsewhere in these operations specifications, the certificate holder shall not conduct Class II navigation operations within Central East Pacific (CEP) Airspace, North Pacific (NOPAC) Airspace, North Atlantic Minimum Navigation Performance Specifications (NAT/MNPS) Airspace, or areas of magnetic unreliability (AMU). The certificate holder shall conduct all Class II navigation operations using M-LRNS in accordance with the provisions of this paragraph.

b. Authorized Airplane(s) and Equipment.

(1) The certificate holder is authorized to conduct Class II navigation using the following airplane(s) with M-LRNS.

Table 1 - Authorized Airplane(s) and Equipment

Airplane M/M/S	Long-Range Navigation Systems (LRNS)		RNP Type	RNP Time Limits
	Manufacturer	Model		

c. Special Limitations and Provisions. The certificate holder shall conduct all operations using M-LRNS in accordance with the following limitations and provisions:

(1) The certificate holder shall conduct all Class II navigation operations so the airplane is continuously navigated to the degree of accuracy or Required Navigation Performance (RNP) type required for air traffic control (ATC). For areas where these accuracy and navigation performance standards have not been formally established, the LRNS must be used to continuously navigate the airplane so that the cross-track and/or the along-track errors will not exceed 25 nautical miles at any point along the flight plan route specified in the ATC clearance.

(2) The navigation system shall be operational as required by operations specifications B037 (CEP), B038 (NOPAC), B039 (NAT/MNPS), or B040 (AMU), as applicable.

(3) Except when navigation is being performed under the supervision of a check airman properly qualified for Class II navigation, the flightcrew must be qualified on the system being used in accordance with the certificate holder's approved training program. The flightcrew performing under the supervision of a check airman shall have satisfactorily completed the ground school portion of that training program.

(a) Prior to entering any airspace requiring the use of a LRNS, for airplanes approved for operations using GPS equipage and/or DME/DME automatic updating, the systems must be confirmed to be functioning normally (no fault indications); for all other airplanes the position shall be accurately fixed using airways navigation facilities or ATC radar.

(b) After exiting this airspace, the airplane position shall be accurately fixed and the LRNS error shall be determined and logged in accordance with the certificate holder's approved procedures. An arrival gate position check satisfies this requirement.

(c) For airplanes approved for operations and using GPS equipage and/or DME/DME automatic position updating, no exit position fix is required unless there is an indication of LRNS malfunction.

(4) A LRNS fix may be substituted for a required en route ground facility when that facility is temporarily out of service, provided the approved navigation system has sufficient capability to navigate the airplane to the degree of accuracy or RNP type required for ATC over that portion of the flight.

(5) At dispatch, at least one of the navigation system configurations listed below must be installed and operational:

(a) At least two independent inertial navigation systems (INS);

(b) At least two flight management systems (FMS)/navigation sensor combinations (or equivalent);

(c) At least two independent approved GPS navigation systems acceptable for primary means of Class II navigation in oceanic and remote areas;

(d) INS that use a mixed position solution (e.g., triple mix); or

(e) At least two approved independent LRNS from the list below:

- INS.
- FMS/navigation sensor combination (or equivalent).
- GPS navigation system approved for Class II navigation in oceanic and remote areas.

d. Operation on Routes or in Areas where an RNP Type is Specified. Operations in areas or on routes where an RNP type is specified must be conducted in accordance with the following limitations or provisions:

(1) At dispatch, one of the navigation system configurations listed in subparagraph c(5) above must be installed, operational and (as listed in subparagraph b, Table 1) approved for the specified RNP type (or better).

(2) The certificate holder must ensure that the airplane navigation system will provide the specified RNP type for the planned flight time in the airspace and, if applicable, that the airplane will be operated in the RNP area of operation established using the RNP time limit listed in subparagraph b.

(3) The International Civil Aviation Organization (ICAO) flight plan filed with the Air Traffic Service Provider (ATSP) must show that the airplane and certificate holder are approved for the specified RNP (or better).

e. Deviations to RNP Requirements. The Administrator may authorize a certificate holder to deviate from RNP requirements in subparagraph d for a specific individual flight in airspace where an RNP type is specified, if the ATSP determined that the airplane will not interfere with, or impose a burden on other operators. Operations conducted under such authority will be conducted in accordance with the following limitations and provisions:

(1) If fuel planning is predicated on en route climb to flight levels where RNP is normally required, an appropriate request must be coordinated in advance of the flight with the ATSP.

(2) The appropriate information blocks in the ICAO flight plan filed with the ATSP must show that the airplane is **not** approved for the specified RNP type.

(3) At dispatch, at least one of the navigation system configurations listed in subparagraph c(5) above must be installed and operational.

Appendix B. Sample OpSpec B036, Class II Navigation Using Multiple Long-Range Navigation Systems (M-LRNS): 14 CFR Part 121/135

a. The certificate holder is authorized to conduct Class II navigation using Multiple Long-Range Navigation Systems (M-LRNS) only within the areas of en route operation where this paragraph is referenced in paragraph B050 of these operations specifications. Unless specifically authorized elsewhere in these operations specifications, the certificate holder shall not conduct Class II navigation operations within Central East Pacific (CEP) Airspace, North Pacific (NOPAC) Airspace, North Atlantic Minimum Navigation Performance Specifications (NAT/MNPS) Airspace, or areas of magnetic unreliability (AMU). The certificate holder shall conduct all Class II navigation operations using M-LRNS in accordance with the provisions of this paragraph.

b. Authorized Airplane(s) and Equipment.

(1) The certificate holder is authorized to conduct Class II navigation using the following airplane(s) with M-LRNS.

Table 1 - Authorized Airplane(s) and Equipment

Airplane M/M/S	Long-Range Navigation Systems (LRNS)		RNP Type	RNP Time Limits
	Manufacturer	Model		

c. Special Limitations and Provisions. The certificate holder shall conduct all operations using M-LRNS in accordance with the following limitations and provisions:

(1) The certificate holder shall conduct all Class II navigation operations so the airplane is continuously navigated to the degree of accuracy or Required Navigation Performance (RNP) type required for air traffic control (ATC). For areas where these accuracy and navigation performance standards have not been formally established, the LRNS must be used to continuously navigate the airplane so that the cross-track and/or the along-track errors will not exceed 25 nautical miles at any point along the flight plan route specified in the ATC clearance.

(2) The navigation system shall be operational as required by operations specifications B037 (CEP), B038 (NOPAC), B039 (NAT/MNPS), or B040 (AMU), as applicable.

(3) Except when navigation is being performed under the supervision of a check airman properly qualified for Class II navigation, the flightcrew must be qualified on the system being used in accordance with the certificate holder's approved training program. The flightcrew performing under the supervision of a check airman shall have satisfactorily completed the ground school portion of that training program.

(a) Prior to entering any airspace requiring the use of a LRNS, for airplanes approved for operations using GPS equipage and/or DME/DME automatic updating, the systems must be confirmed to be functioning normally (no fault indications); for all other airplanes the position shall be accurately fixed using airways navigation facilities or ATC radar.

(b) After exiting this airspace, the airplane position shall be accurately fixed and the LRNS error shall be determined and logged in accordance with the certificate holder's approved procedures. An arrival gate position check satisfies this requirement.

(c) For airplanes approved for operations and using GPS equipage and/or DME/DME automatic position updating, no exit position fix is required unless there is an indication of LRNS malfunction.

(4) A LRNS fix may be substituted for a required en route ground facility when that facility is temporarily out of service, provided the approved navigation system has sufficient capability to navigate the airplane to the degree of accuracy or RNP type required for ATC over that portion of the flight.

(5) At dispatch, at least one of the navigation system configurations listed below must be installed and operational:

(a) At least two independent inertial navigation systems (INS);

(b) At least two flight management systems (FMS)/navigation sensor combinations (or equivalent);

(c) At least two independent approved GPS navigation systems acceptable for primary means of Class II navigation in oceanic and remote areas;

(d) INS that use a mixed position solution (e.g., triple mix); or

(e) At least two approved independent LRNS from the list below:

- INS.
- FMS/navigation sensor combination (or equivalent).
- GPS navigation system approved for Class II navigation in oceanic and remote areas.

d. Operation on Routes or in Areas where an RNP Type is Specified. Operations in areas or on routes where an RNP type is specified must be conducted in accordance with the following limitations or provisions:

(1) At dispatch, one of the navigation system configurations listed in subparagraph c(5) above must be installed, operational and (as listed in subparagraph b, Table 1) approved for the specified RNP type (or better).

(2) The certificate holder must ensure that the airplane navigation system will provide the specified RNP type for the planned flight time in the airspace and, if applicable, that the airplane will be operated in the RNP area of operation established using the RNP time limit listed in subparagraph b.

(3) The International Civil Aviation Organization (ICAO) flight plan filed with the Air Traffic Service Provider (ATSP) must show that the airplane and certificate holder are approved for the specified RNP (or better).

e. Deviations to RNP Requirements. The Administrator may authorize a certificate holder to deviate from RNP requirements in subparagraph d for a specific individual flight in airspace where an RNP type is specified, if the ATSP determined that the airplane will not interfere with, or impose a burden on other operators. Operations conducted under such authority will be conducted in accordance with the following limitations and provisions:

(1) If fuel planning is predicated on en route climb to flight levels where RNP is normally required, an appropriate request must be coordinated in advance of the flight with the ATSP.

(2) The appropriate information blocks in the ICAO flight plan filed with the ATSP must show that the airplane is **not** approved for the specified RNP type.

(3) At dispatch, at least one of the navigation system configurations listed in subparagraph c(5) above must be installed and operational.

Appendix C. Sample OpSpec B036, Class II Navigation Using Multiple Long-Range Navigation Systems (M-LRNS): 14 CFR Part 135

a. The certificate holder is authorized to conduct Class II navigation using Multiple Long-Range Navigation Systems (M-LRNS) only within the areas of en route operation where this paragraph is referenced in paragraph B050 of these operations specifications. Unless specifically authorized elsewhere in these operations specifications, the certificate holder shall not conduct Class II navigation operations within Central East Pacific (CEP) Airspace, North Pacific (NOPAC) Airspace, North Atlantic Minimum Navigation Performance Specifications (NAT/MNPS) Airspace, or areas of magnetic unreliability (AMU). The certificate holder shall conduct all Class II navigation operations using M-LRNS in accordance with the provisions of this paragraph.

b. Authorized Airplane(s) and Equipment.

(1) The certificate holder is authorized to conduct Class II navigation using the following airplane(s) with M-LRNS.

Table 1 - Authorized Airplane(s) and Equipment

Airplane M/M/S	Long-Range Navigation Systems (LRNS)		RNP Type	RNP Time Limits
	Manufacturer	Model		

c. Special Limitations and Provisions. The certificate holder shall conduct all operations using M-LRNS in accordance with the following limitations and provisions:

(1) The certificate holder shall conduct all Class II navigation operations so the airplane is continuously navigated to the degree of accuracy or Required Navigation Performance (RNP) type required for air traffic control (ATC). For areas where these accuracy and navigation performance standards have not been formally established, the LRNS must be used to continuously navigate the airplane so that the cross-track and/or the along-track errors will not exceed 25 nautical miles at any point along the flight plan route specified in the ATC clearance.

(2) The navigation system shall be operational as required by operations specifications B037 (CEP), B038 (NOPAC), B039 (NAT/MNPS), or B040 (AMU), as applicable.

(3) Except when navigation is being performed under the supervision of a check airman properly qualified for Class II navigation, the flightcrew must be qualified on the system being used in accordance with the certificate holder's approved training program. The flightcrew performing under the supervision of a check airman shall have satisfactorily completed the ground school portion of that training program.

(a) Prior to entering any airspace requiring the use of a LRNS, for airplanes approved for operations using GPS equipage and/or DME/DME automatic updating, the systems must be confirmed to be functioning normally (no fault indications); for all other airplanes the position shall be accurately fixed using airways navigation facilities or ATC radar.

(b) After exiting this airspace, the airplane position shall be accurately fixed and the LRNS error shall be determined and logged in accordance with the certificate holder's approved procedures. An arrival gate position check satisfies this requirement.

(c) For airplanes approved for operations and using GPS equipage and/or DME/DME automatic position updating, no exit position fix is required unless there is an indication of LRNS malfunction.

(4) A LRNS fix may be substituted for a required en route ground facility when that facility is temporarily out of service, provided the approved navigation system has sufficient capability to navigate the airplane to the degree of accuracy or RNP type required for ATC over that portion of the flight.

(5) At dispatch, at least one of the navigation system configurations listed below must be installed and operational:

(a) At least two independent inertial navigation systems (INS);

(b) At least two flight management systems (FMS)/navigation sensor combinations (or equivalent);

(c) At least two independent approved GPS navigation systems acceptable for primary means of Class II navigation in oceanic and remote areas;

(d) INS that use a mixed position solution (e.g., triple mix); or

(e) At least two approved independent LRNS from the list below:

- INS.
- FMS/navigation sensor combination (or equivalent).
- GPS navigation system approved for Class II navigation in oceanic and remote areas.

d. Operation on Routes or in Areas where an RNP Type is Specified. Operations in areas or on routes where an RNP type is specified must be conducted in accordance with the following limitations or provisions:

(1) At dispatch, one of the navigation system configurations listed in subparagraph c(5) above must be installed, operational and (as listed in subparagraph b, Table 1) approved for the specified RNP type (or better).

(2) The certificate holder must ensure that the airplane navigation system will provide the specified RNP type for the planned flight time in the airspace and, if applicable, that the airplane will be operated in the RNP area of operation established using the RNP time limit listed in subparagraph b.

(3) The International Civil Aviation Organization (ICAO) flight plan filed with the Air Traffic Service Provider (ATSP) must show that the airplane and certificate holder are approved for the specified RNP (or better).

e. Deviations to RNP Requirements. The Administrator may authorize a certificate holder to deviate from RNP requirements in subparagraph d for a specific individual flight in airspace where an RNP type is specified, if the ATSP determined that the airplane will not interfere with, or impose a burden on other operators. Operations conducted under such authority will be conducted in accordance with the following limitations and provisions:

(1) If fuel planning is predicated on en route climb to flight levels where RNP is normally required, an appropriate request must be coordinated in advance of the flight with the ATSP.

(2) The appropriate information blocks in the ICAO flight plan filed with the ATSP must show that the airplane is **not** approved for the specified RNP type.

(3) At dispatch, at least one of the navigation system configurations listed in subparagraph c(5) above must be installed and operational.

Appendix D. Sample OpSpec B036, Class II Navigation Using Multiple Long-Range Navigation Systems (M-LRNS): 14 CFR Part 125

a. The certificate holder is authorized to conduct Class II navigation using Multiple Long-Range Navigation Systems (M-LRNS) only within the areas of en route operation where this paragraph is referenced in paragraph B050 of these operations specifications. Unless specifically authorized elsewhere in these operations specifications, the certificate holder shall not conduct Class II navigation operations within Central East Pacific (CEP) Airspace, North Pacific (NOPAC) Airspace, North Atlantic Minimum Navigation Performance Specifications (NAT/MNPS) Airspace, or areas of magnetic unreliability (AMU). The certificate holder shall conduct all Class II navigation operations using M-LRNS in accordance with the provisions of this paragraph.

b. Authorized Airplane(s) and Equipment.

(1) The certificate holder is authorized to conduct Class II navigation using the following airplane(s) with M-LRNS.

Table 1 - Authorized Airplane(s) and Equipment

Airplane M/M/S	Long-Range Navigation Systems (LRNS)		RNP Type	RNP Time Limits
	Manufacturer	Model		

c. Special Limitations and Provisions. The certificate holder shall conduct all operations using M-LRNS in accordance with the following limitations and provisions:

(1) The certificate holder shall conduct all Class II navigation operations so the airplane is continuously navigated to the degree of accuracy or Required Navigation Performance (RNP) type required for air traffic control (ATC). For areas where these accuracy and navigation performance standards have not been formally established, the LRNS must be used to continuously navigate the airplane so that the cross-track and/or the along-track errors will not exceed 25 nautical miles at any point along the flight plan route specified in the ATC clearance.

(2) The navigation system shall be operational as required by operations specifications B037 (CEP), B038 (NOPAC), B039 (NAT/MNPS), or B040 (AMU), as applicable.

(3) Except when navigation is being performed under the supervision of a check airman properly qualified for Class II navigation, the flightcrew must be qualified on the system being used in accordance with the certificate holder's approved training program. The flightcrew performing under the supervision of a check airman shall have satisfactorily completed the ground school portion of that training program.

(a) Prior to entering any airspace requiring the use of a LRNS, for airplanes approved for operations using GPS equipage and/or DME/DME automatic updating, the systems must be confirmed to be functioning normally (no fault indications); for all other airplanes the position shall be accurately fixed using airways navigation facilities or ATC radar.

(b) After exiting this airspace, the airplane position shall be accurately fixed and the LRNS error shall be determined and logged in accordance with the certificate holder's approved procedures. An arrival gate position check satisfies this requirement.

(c) For airplanes approved for operations and using GPS equipage and/or DME/DME automatic position updating, no exit position fix is required unless there is an indication of LRNS malfunction.

(4) A LRNS fix may be substituted for a required en route ground facility when that facility is temporarily out of service, provided the approved navigation system has sufficient capability to navigate the airplane to the degree of accuracy or RNP type required for ATC over that portion of the flight.

(5) At dispatch, at least one of the navigation system configurations listed below must be installed and operational:

(a) At least two independent inertial navigation systems (INS);

(b) At least two flight management systems (FMS)/navigation sensor combinations (or equivalent);

(c) At least two independent approved GPS navigation systems acceptable for primary means of Class II navigation in oceanic and remote areas;

(d) INS that use a mixed position solution (e.g., triple mix); or

(e) At least two approved independent LRNS from the list below:

- INS.
- FMS/navigation sensor combination (or equivalent).
- GPS navigation system approved for Class II navigation in oceanic and remote areas.

d. Operation on Routes or in Areas where an RNP Type is Specified. Operations in areas or on routes where an RNP type is specified must be conducted in accordance with the following limitations or provisions:

(1) At dispatch, one of the navigation system configurations listed in subparagraph c(5) above must be installed, operational and (as listed in subparagraph b, Table 1) approved for the specified RNP type (or better).

(2) The certificate holder must ensure that the airplane navigation system will provide the specified RNP type for the planned flight time in the airspace and, if applicable, that the airplane will be operated in the RNP area of operation established using the RNP time limit listed in subparagraph b.

(3) The International Civil Aviation Organization (ICAO) flight plan filed with the Air Traffic Service Provider (ATSP) must show that the airplane and certificate holder are approved for the specified RNP (or better).

e. Deviations to RNP Requirements. The Administrator may authorize a certificate holder to deviate from RNP requirements in subparagraph d for a specific individual flight in airspace where an RNP type is specified, if the ATSP determined that the airplane will not interfere with, or impose a burden on other operators. Operations conducted under such authority will be conducted in accordance with the following limitations and provisions:

(1) If fuel planning is predicated on en route climb to flight levels where RNP is normally required, an appropriate request must be coordinated in advance of the flight with the ATSP.

(2) The appropriate information blocks in the ICAO flight plan filed with the ATSP must show that the airplane is **not** approved for the specified RNP type.

(3) At dispatch, at least one of the navigation system configurations listed in subparagraph c(5) above must be installed and operational.

Appendix E. Sample LOA B036, Class II Navigation Using Multiple Long-Range Navigation Systems (M-LRNS): 14 CFR Part 125 (LODA A125)

Letter of Authorization

Class II Navigation Using Multiple Long-Range Navigation Systems (M-LRNS)

1. The Operator/Company, authorized to conduct operations in accordance with the Letter of Deviation Authority (LODA A125), is authorized to conduct Class II navigation using Multiple Long-Range Navigation Systems (M-LRNS) only within the areas of en route operation where this Letter of Authorization (LOA) is referenced in LOA B050 of these authorizations. Unless specifically authorized elsewhere in these authorizations, the Operator/Company shall not conduct Class II navigation operations within Central East Pacific (CEP) Airspace, North Pacific (NOPAC) Airspace, North Atlantic Minimum Navigation Performance Specifications (NAT/MNPS) Airspace, or Areas of Magnetic Unreliability (AMU). The Operator/Company shall conduct all Class II navigation operations using M-LRNS in accordance with the provisions of this LOA.

2. Authorized Airplane(s) and Equipment. The Operator/Company is authorized to conduct Class II navigation using the following airplane(s) with M-LRNS.

Table 1 - Authorized Airplane(s) and Equipment

Airplane M/M/S	Long-Range Navigation Systems (LRNS)		RNP Type	RNP Time Limits
	Manufacturer	Model		

3. Special Limitations and Provisions. The Operator/Company shall conduct all operations using M-LRNS in accordance with the following limitations and provisions:

a. The Operator/Company shall conduct all Class II navigation operations so the airplane is continuously navigated to the degree of accuracy or Required Navigation Performance (RNP) type required for air traffic control (ATC). For areas where these accuracy and navigation performance standards have not been formally established, the LRNS must be used to continuously navigate the airplane so that the cross-track and/or the along-track errors will not exceed 25 nautical miles at any point along the flight plan route specified in the ATC clearance.

b. The navigation system shall be operational as required by LOAs B037 (CEP), B038 (NOPAC), B039 (NAT/MNPS), or B040 (AMU), as applicable.

c. Except when navigation is being performed under the supervision of a check airman properly qualified for Class II navigation, the flightcrew must be qualified on the system being used in accordance with the Operator's/Company's approved training program. The flightcrew performing under the supervision of a check airman shall have satisfactorily completed the ground school portion of that training program.

(1) Prior to entering any airspace requiring the use of a LRNS, for airplanes approved for operations using GPS equipage and/or DME/DME automatic updating, the systems must be confirmed to be functioning normally (no fault indications); for all other airplanes, the position shall be accurately fixed using airways navigation facilities or ATC radar.

(2) After exiting this airspace, the airplane position shall be accurately fixed and the long-range navigation system error shall be determined and logged in accordance with the Operator's/Company's approved procedures. An arrival gate position check satisfies this requirement.

(3) For airplanes approved for operations and using GPS equipage and/or DME/DME automatic position updating, no exit position fix is required unless there is an indication of LRNS malfunction.

d. A LRNS fix may be substituted for a required en route ground facility when that facility is temporarily out of service, provided the approved navigation system has sufficient capability to navigate the airplane to the degree of accuracy or RNP type required for ATC over that portion of the flight.

e. At flight release, at least one of the navigation system configurations listed below must be installed and operational:

(1) At least two independent inertial navigation systems (INS);

(2) At least two flight management systems (FMS)/navigation sensor combinations (or equivalent);

(3) At least two independent approved GPS navigation systems acceptable for primary means of Class II navigation in oceanic and remote areas;

(4) INS that use a mixed position solution (e.g., triple mix); or

(5) At least two approved independent LRNS from the list below:

- INS.
- FMS/navigation sensor combination (or equivalent).
- GPS navigation system approved for Class II navigation in oceanic and remote areas.

4. Operation on Routes or in Areas where an RNP Type is Specified. Operations in areas or on routes where an RNP type is specified must be conducted in accordance with the following limitations or provisions:

a. At flight release, one of the navigation system configurations listed in subparagraph 3.e, must be installed, operational and (as listed in subparagraph 2, Table 1) approved for the specified RNP type (or better).

b. The Operator/Company must ensure that the airplane navigation system will provide the specified RNP type for the planned flight time in the airspace and, if applicable, that the airplane will be operated in the RNP area of operation established using the RNP time limit listed in subparagraph 2 above.

c. The International Civil Aviation Organization (ICAO) flight plan filed with the Air Traffic Service Provider (ATSP) must show that the airplane and Operator/Company are approved for the specified RNP (or better).

5. Deviations to RNP Requirements. The Administrator may authorize a Operator/Company to deviate from RNP requirements in subparagraph 4 for a specific individual flight in airspace where an RNP type is specified, if the ATSP determined that the airplane will not interfere with, or impose a burden on other operators. Operations conducted under such authority will be conducted in accordance with the following limitations and provisions:

a. If fuel planning is predicated on en route climb to flight levels where RNP is normally required, an appropriate request must be coordinated in advance of the flight with the ATSP.

b. The appropriate information blocks in the ICAO flight plan filed with the ATSP must show that the airplane is **not** approved for the specified RNP type.

c. At flight release, at least one of the navigation system configurations listed in subparagraph 3.e. above must be installed and operational.

Appendix F. Sample MSpec MB036, Class II Navigation Using Multiple Long-Range Navigation Systems (M-LRNS): 14 CFR Part 91 Subpart K

a. The program manager is authorized to conduct Class II navigation using Multiple Long-Range Navigation Systems (M-LRNS) only within the areas of en route operation where this paragraph is referenced in paragraph MB050 of these management specifications. Unless specifically authorized elsewhere in these management specifications, the program manager shall not conduct Class II navigation operations within Central East Pacific (CEP) Airspace, North Pacific (NOPAC) Airspace, North Atlantic Minimum Navigation Performance Specifications (NAT/MNPS) Airspace, or areas of magnetic unreliability (AMU). The program manager shall conduct all Class II navigation operations using M-LRNS in accordance with the provisions of this paragraph.

b. Authorized Airplane(s) and Equipment.

(1) The program manager is authorized to conduct Class II navigation using the followingairplane(s) with M-LRNS. [The program manager certifies that the navigation equipment referenced in the AFM requiring a specific RNP type is authorized for Class II navigation.]

Table 1 - Authorized Airplane(s) and Equipment

Airplane M/M/S	Long-Range Navigation Systems (LRNS)		RNP Type	RNP Time Limits
	Manufacturer	Model		

c. Special Limitations and Provisions. The program manager shall conduct all operations using M-LRNS in accordance with the following limitations and provisions:

(1) The program manager shall conduct all Class II navigation operations so the airplane is continuously navigated to the degree of accuracy or Required Navigation Performance (RNP) type required for air traffic control (ATC). For areas where these accuracy and navigation performance standards have not been formally established, the LRNS must be used to continuously navigate the airplane so that the cross-track and/or the along-track errors will not exceed 25 nautical miles at any point along the flight plan route specified in the ATC clearance.

(2) The navigation system shall be operational as required by management specifications MB037 (CEP), MB038 (NOPAC), MB039 (NAT/MNPS), or MB040 (AMU), as applicable.

(3) Except when navigation is being performed under the supervision of a check pilot properly qualified for Class II navigation, the flightcrew must be qualified on the system being used in accordance with the program manager's approved training program. The flightcrew performing under the supervision of a check pilot shall have satisfactorily completed the ground school portion of that training program.

(a) Prior to entering any airspace requiring the use of a LRNS, for airplanes approved for operations using GPS equipage and/or DME/DME automatic updating, the systems must be confirmed to be functioning normally (no fault indications); for all other airplanes the position shall be accurately fixed using airways navigation facilities or ATC radar.

(b) After exiting this airspace, the airplane position shall be accurately fixed and the LRNS error shall be determined and logged in accordance with the program manager's approved procedures. An arrival gate position check satisfies this requirement.

(c) For airplanes approved for operations and using GPS equipage and/or DME/DME automatic position updating, no exit position fix is required unless there is an indication of LRNS malfunction.

(4) A LRNS fix may be substituted for a required en route ground facility when that facility is temporarily out of service, provided the approved navigation system has sufficient capability to navigate the airplane to the degree of accuracy or RNP type required for ATC over that portion of the flight.

(5) At dispatch, at least one of the navigation system configurations listed below must be installed and operational:

(a) At least two independent inertial navigation systems (INS);

(b) At least two flight management systems (FMS)/navigation sensor combinations (or equivalent);

(c) At least two independent approved GPS navigation systems acceptable for primary means of Class II navigation in oceanic and remote areas;

(d) INS that use a mixed position solution (e.g., triple mix); or

(e) At least two approved independent LRNS from the list below:

- INS.
- FMS/navigation sensor combination (or equivalent).
- GPS navigation system approved for Class II navigation in oceanic and remote areas.

d. Operation on Routes or in Areas where an RNP Type is Specified. Operations in areas or on routes where an RNP type is specified must be conducted in accordance with the following limitations or provisions:

(1) At dispatch, one of the navigation system configurations listed in subparagraph c(5) above must be installed, operational and (as listed in subparagraph b, Table 1) approved for the specified RNP type (or better).

(2) The program manager must ensure that the airplane navigation system will provide the specified RNP type for the planned flight time in the airspace and, if applicable, that the airplane will be operated in the RNP area of operation established using the RNP time limit listed in subparagraph b.

(3) The International Civil Aviation Organization (ICAO) flight plan filed with the Air Traffic Service Provider (ATSP) must show that the airplane and program manager are approved for the specified RNP (or better).

e. Deviations to RNP Requirements. The Administrator may authorize a program manager to deviate from the RNP requirements in subparagraph d for a specific individual flight in airspace where an RNP type is specified, if the ATSP determined that the airplane will not interfere with, or impose a burden on other operators. Operations conducted under such authority will be conducted in accordance with the following limitations and provisions:

(1) If fuel planning is predicated on en route climb to flight levels where RNP is normally required, an appropriate request must be coordinated in advance of the flight with the ATSP.

(2) The appropriate information blocks in the ICAO flight plan filed with the ATSP must show that the airplane is **not** approved for the specified RNP type.

(3) At dispatch, at least one of the navigation system configurations listed in subparagraph c(5) above must be installed and operational.