Comparison Matrix of the Outline of DO-144 versus what will become DO-144A

DO-144			DO-144A	
Requirements Section	**Section Title**	**State in DO-144A**	**Requirements Section**	**Section Title**
1	Concepts, Philosophy and Development of Minimum Operational Characteristics (MOC's) for Airborne Systems	Renamed	1	PURPOSE AND SCOPE
1.1	The Need for Basic Characteristics for Navigation and Communication Systems used in Air Traffic Control (ATC)	Renamed	1.1	Introduction
1.2	Minimum Operational Characteristics of the Airborne System Elements	Absorbed into 1.1		
1.3	Equipment Specifications and Environmental Standards	Becomes 2.1		
1.4	International Standards	Absorbed into 1.1		
1.5	Preparation of Minimum Operational Characteristics for Airborne Systems	Absorbed into 1.1		
1.5.1	System Characteristics	DEAD – Deleted		
1.5.2	Minimum Operational Characteristics of the Airborne System Element	Becomes 1.5		
1.5.3	Demonstration of Compliance	DEAD – Deleted		
1.6	Applicability of Minimum Operational Characteristics (MOC's) for Airborne System Elements	DEAD – Deleted		
2	Minimum Operational Characteristics (MOC's) for Airborne ATC Transponder Systems		2	EQUIPMENT PERFORMANCE REQUIREMENTS AND TEST PROCEDURES
2.1	System Characteristics		2.1	General Requirements
			2.1.1	Airworthiness
			2.1.2	Intended Function
			2.1.3	Federal Communications Commission Rules
			2.1.4	Fire Protection
			2.1.5	Operation of Controls
			2.1.6	Accessibility of Controls
			2.1.7	Effects of Test
			2.1.8	Display of Navigation Facility Identification
			2.1.9	Design Assurance
			2.1.10	Continue with other General Requirements as Required
2.1.1	U.S.A. National and International Service	Becomes text of 2.1.2		
2.2	Minimum Operational Characteristics (MOC's) for Airborne ATC Transponder Systems	Moved into 1.4	2.2	Equipment Performance – Standard Conditions
			2.2.1	Definition of Standard Conditions
			2.2.2	Receiver Characteristics
			2.2.3	Transmitter Characteristics
			2.2.4	Reply Pulse Characteristics
			2.2.5	Side Lobe Characteristics
			2.2.6	Pulse Decoder Characteristics
			2.2.7	Desensitization and Recovery Characteristics
			2.2.8	Response in the Presence of Interference

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Requirements Section	**Section Title**	**State in DO-144A**	**Requirements Section**	**Section Title**
			2.2.9	Undesired Replies
			2.2.10	Self Test
			2.2.11	Response in Mutual Suppression Pulses
			2.2.12	Diversity
			2.2.13	Data Handling and Interfaces
			2.2.14	ATCRBS Transponder
			2.2.15	Antennas
			2.2.15.1	Frequency
			2.2.15.2	Impedance and VSWR
			2.2.15.3	Polarization
			2.2.15.4	Radiation Pattern
			2.2.16	Power
			2.2.16.1	Cold Start
			2.2.16.2	Interruption
2.2.1	Polarization	Becomes 2.2.15.3		
2.2.2	Reply Radio Frequency (Air-to-Ground)	Becomes 2.2.15.1 & 2.2.3.1		
2.2.3	Reply Transmission Characteristics (Signals-in-Space)			
2.2.3.1	Framing Pulses	Becomes 2.2.4.1		
2.2.3.2	Information Pulses	Becomes 2.2.4.2		
2.2.3.3	Special Position Identification (SPI) Pulse	Becomes 2.2.4.3		
2.2.3.4	Reply Pulse Shape	Becomes 2.2.4.4		
2.2.3.5	Reply Pulse Interval Tolerances	Becomes 2.2.4.5		
2.2.3.6	Code Nomenclature	Becomes part of 2.2.13		
2.2.4	Reply	Becomes part of 2.2.5		
2.2.5	No Reply	Becomes part of 2.2.5		
2.2.6	Dead Time	Becomes part of 2.2.7		
2.2.7	Suppression	Becomes part of 2.2.5		
2.2.8	Receiver Sensitivity and Dynamic Range	Becomes part of 2.2.6 & 3.3.9		
2.2.9	Pulse Duration Discrimination	Becomes part of 2.2.6		
2.2.10	Echo Suppression and Recovery	Becomes part of 2.2.7		
2.2.10.1	Desensitization	Becomes part of 2.2.7		
2.2.10.2	Recovery	Becomes part of 2.2.7		
2.2.11	Random Triggering and Suppression Rate	Becomes part of 2.2.8 & 2.2.9		
2.2.12	Interference Suppression Pulses	Becomes part of 2.2.11		
2.2.13	Reply Rate	Becomes part of 2.2.7		
2.2.14	Reply Delay and Jitter	Becomes part of 2.2.4		
2.2.15	Transponder Power Output	Becomes part of 2.2.3		
2.2.16	Reply Codes			
2.2.16.1	Identification	Becomes part of 2.2.13 & 2.1.7		
2.2.16.2	Pressure Altitude Transmissions	Becomes part of 2.2.13		
2.2.17	Transmission Time of Special Position Identification (SPI) Pulse	Becomes part of 2.2.4		
2.2.18	Transponder Receiver Bandwidth	Becomes part of 2.2.2		
2.2.19	Transponder Self-Test and Monitor	Becomes 2.2.10		

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Requirements Section	**Section Title**	**State in DO-144A**	**Requirements Section**	**Section Title**
2.2.19.1	Manual Self-Test	Becomes 2.2.10.1		
2.2.19.2	Automatic Self-Test	Becomes 2.2.10.2		
2.2.20	Antenna	Becomes part of 2.2.15		
2.2.21	Emission of Spurious RF Energy	Becomes part of 2.2.3		
2.3	Demonstration of Compliance and Guidance Material	All 2.3 topics should translate into a MOPS section 2.4 text	2.3	Equipment Performance – Environmental Conditions
2.3.1	System Installation			
2.3.2	System Performance			
2.3.2.1	Bench Tests			
2.3.2.1.1	Polarization			
2.3.2.1.2	Reply Radio Frequency (Air-to-Ground)			
2.3.2.1.3	Reply Transmission Characteristics (Signals-in-Space)			
2.3.2.1.4	Reply			
2.3.2.1.5	No Reply			
2.3.2.1.6	Dead Time			
2.3.2.1.7	Suppression			
2.3.2.1.8	Receiver Sensitivity and Dynamic Range			
2.3.2.1.9	Pulse Duration Discrimination			
2.3.2.1.10	Echo Suppression and Recovery			
2.3.2.1.10.1	Desensitization			
2.3.2.1.10.2	Recovery			
2.3.2.1.11	Interference Suppression Pulses			
2.3.2.1.12	Reply Rate			
2.3.2.1.13	Reply Delay and Jitter			
2.3.2.1.13.1	Replay Delay			
2.3.2.1.13.2	Jitter			
2.3.2.1.14	Transponder Power Outpu			
2.3.2.1.15	Reply Codes			
2.3.2.1.15.1	Identification			
2.3.2.1.15.2	Pressure Altitude Transmissions			
2.3.2.1.16	Transmission Time of SPI Pulse			
2.3.2.1.17	Transponder Receiver Bandwidth			
2.3.2.1.18	Transponder Self-Test and Monitor			
2.3.2.1.18.1	Manual Self-Test			
2.3.2.1.18.2	Automatic Self-Test			
2.3.2.1.19	Emission of Spurious RF Energy			
2.3.2.2	Flight Tests			
2.3.2.2.1	Ground Pre-Flight Tests			
2.3.2.2.2	Operational Flight Tests			
2.4	References		2.4	Equipment Test Procedures
			3	INSTALLED EQUIPMENT PERFORMANCE
			4	EQUIPMENT OPERATIONAL PERFORMANCE CHARACTERISTICS

DO-144			DO-144A	
Requirements Section	**Section Title**	**State in DO-144A**	**Requirements Section**	**Section Title**

Default RTCA MOPS Outline	
Requirements Section	**Section Title**
1	PURPOSE AND SCOPE
1.1	Introduction
1.2	System Overview
1.3	Operational Application(s)
1.4	Intended Function
1.5	Operational Goals
1.6	Assumptions
1.7	Test Procedures
1.8	Definition of Key Terms
2	Equipment Performance Requirements and Test Procedures
2.1	General Requirements
2.1.1	Airworthiness
2.1.2	Intended Function
2.1.3	Federal Communications Commission Rules
2.1.4	Fire Protection
2.1.5	Operation of Controls
2.1.6	Accessibility of Controls
2.1.7	Effects of Test
2.1.8	Display of Navigation Facility Identification
2.1.9	Design Assurance
2.1.10	Continue with other General Requirements as Required
2.2	Equipment Performance – Standard Conditions
2.2.1	Definition of Standard Conditions
2.3	Equipment Performance – Environmental Conditions
2.3.1	Temperature and Altitude Tests (RTCA/DO-160C, Section 4.0)
2.3.1.1	Low Operating Temperature Test
2.3.1.2	High Short-Time Operating Temperature Test
2.3.1.3	High Operating Temperature
2.3.1.4	In-Flight Loss of Cooling
2.3.1.5	Altitude Tests
2.3.1.6	Decompression Test
2.3.1.7	Overpressure Test
2.3.2	Temperature Variation Test (RTCA/DO-160D, Section 6.0)
2.3.3	Humidity Test (RTCA/DO-160D, Section 6.0)
2.3.4	Shock Tests (RTCA/DO-160D, Section 7.0)
2.3.4.1	Operational Shocks
2.3.4.2	Crash Safety Shocks
2.3.5	Vibration Tests (RTCA/DO-160D, Section 8.0)
2.3.6	Explosion Test (RTCA/DO-160D, Section 9.0)
2.3.7	Waterproofness Test
2.3.7.1	Drip Proof Test
2.3.7.2	Spray Proof Test
2.3.7.3	Continuous Stream Proof Test
2.3.8	Fluids Susceptibility Tests (RTCA/DO-160D, Section 11.0)

Default RTCA MOPS Outline	
Requirements Section	**Section Title**
2.3.8.1	Spray Test
2.3.8.2	Immersion Test
2.3.9	Sand and Dust Test (RTCA/DO-160D, Section 12.0)
2.3.10	Fungus Resistance Test (RTCA/DO-160D, Section 13.0)
2.3.11	Salt Spray Test (RTCA/DO-160D, Section 14.0)
2.3.12	Magnetic Effect Test (RTCA/DO-160D, Section 15.0)
2.3.13	Power Input Tests (RTCA/DO-160D, Section 16.0)
2.3.13.1	Normal Operating Conditions
2.3.13.2	Abnormal Operating Conditions
2.3.14	Voltage Spike Conducted Test (RTCA/DO-160D, Section 17.0)
2.3.14.1	Category A Requirements (If Applicable)
2.3.14.2	Category B Requirements (If Applicable)
2.3.15	Audio Frequency Conducted Susceptibility Test (RTCA/DO-160D, Section 18.0)
2.3.16	Induced Signal Susceptibility Test (RTCA/DO-160D, Section 19.0)
2.3.17	Radio Frequency Susceptibility Test (RTCA/DO-160D, Section 20.0)
2.3.18	Emission of Radio Frequency Energy Test (RTCA/DO-160D, Section 21.0)
2.3.19	Lightning Induced Transient Susceptibility Test (RTCA/DO-160D, Section 22.0)
2.4	Equipment Test Procedures
2.4.1	Definitions of Standard Conditions of Test
2.4.2	Validation of Title (Paragraph 2.2.X)
3	INSTALLED EQUIPMENT PERFORMANCE
3.1	Equipment Installation
3.1.1	Accessibility
3.1.2	Aircraft Environment
3.1.3	Display Visibility
3.1.4	Dynamic Range
3.1.5	Failure Protection
3.1.6	Interference Effects
3.1.7	Inadvertent Turnoff
3.1.8	Aircraft Power Source
3.1.9	Other Requirements
3.2	Installed Equipment Performance Requirements
3.3	Conditions of Test
3.3.1	Safety Precautions
3.3.2	Power Input
3.3.3	Environment
3.3.4	Adjustment of Equipment
3.3.5	Warm-up Period
3.3.6	Continue with Other Conditions as Necessary
3.4	Test Procedures for Installed Equipment Performance
3.4.1	Ground Test Procedures
3.4.1.1	Conformity Inspection
3.4.1.2	Equipment Function
3.4.1.3	Interference Effects

Default RTCA MOPS Outline	
Requirements Section	**Section Title**
3.4.1.4	Power Supply Fluctuations
3.4.1.5	Equipment Accessibility
3.4.1.6	Continue with Other Test Procedures
3.4.2	Flight Test Procedures
3.4.2.1	Displayed Data Readability
3.4.2.2	Interference Effects
3.4.2.3	Continue with Other Test Procedures
4	EQUIPMENT OPERATIONAL PERFORMANCE CHARACTERISTICS
4.1	Required Operational Performance Requirements
4.1.1	Power Inputs
4.1.2	Equipment Operating Modes
4.1.3	Continue with Other Operational Requirements as Necessary
4.2	Test Procedures for Operational Performance Requirements
4.2.1	Power Input
4.2.2	Equipment Operating Modes
4.2.3	Continue with Other Test Procedures