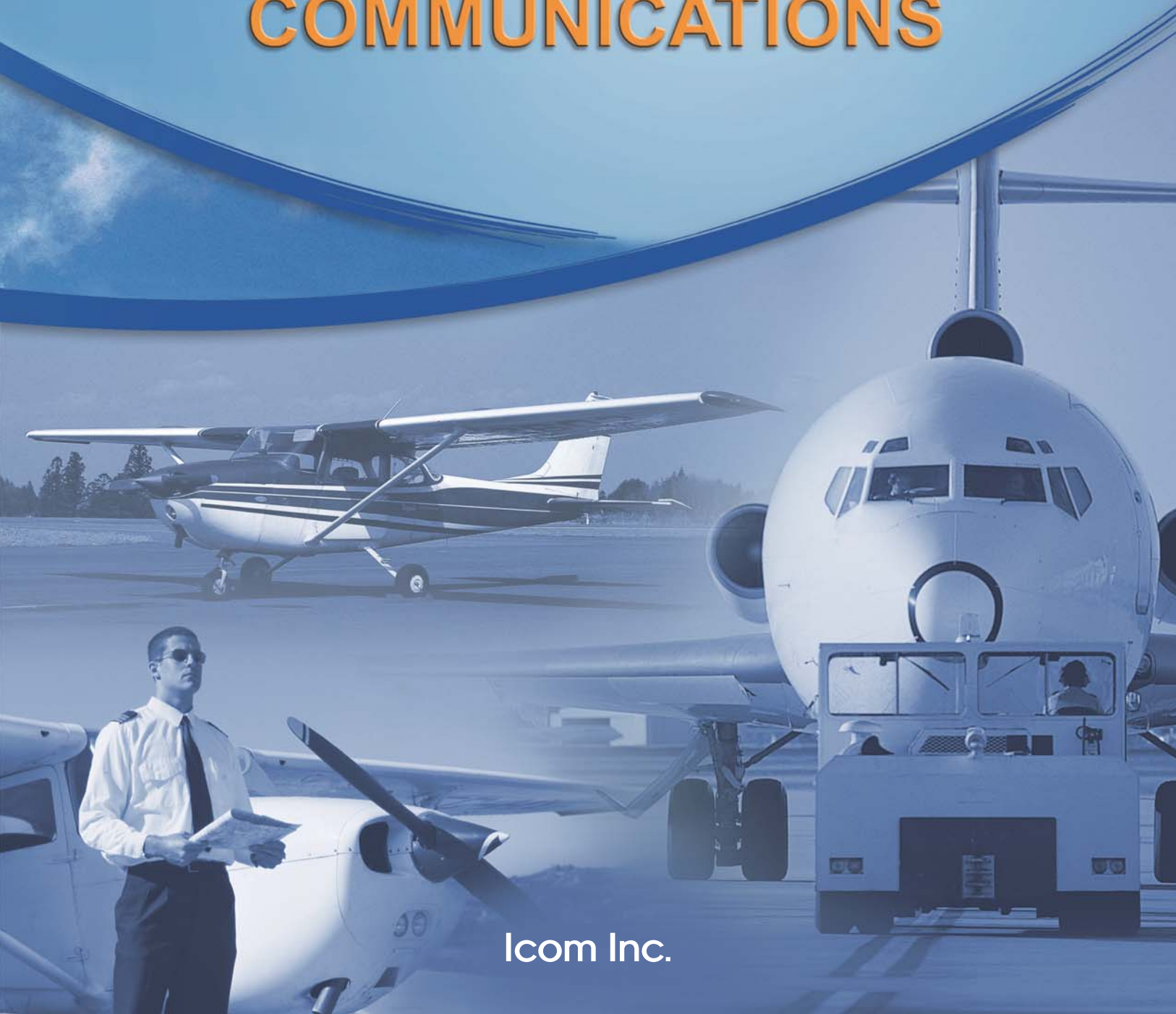


2012 Edition

**ICOM**

# AVIATION COMMUNICATIONS



Icom Inc.

# The world's favorite airband handheld!



IC-A24

IC-A6E

## VHF AIR BAND TRANSCEIVERS

<b>IC-A24</b>	<b>IC-A6</b>
<b>IC-A24E</b>	<b>IC-A6E</b>


NAV & COM channels

COM channels

### Easy to use

Simple one-handed operation is the most essential feature of the IC-A24/E and A6/E. The well labeled, large keypad provides user friendly operation. The large display shows both letters and numbers and is easy to see, making for fast frequency recognition. The display is backlit, and so is the keypad. The light stays on until you turn it off – a very handy feature for flying at night.

### “Flip-flop” channel recall

The IC-A24/E and A6/E stores the last 10 channels used. You can easily recall those channels by pushing the “flip-flop” recall  buttons on the front panel. It is convenient for switching between several channels, such as NAV and COM channels.

### VOR navigation\*

The IC-A24/E has VOR navigation functions. The DVOR mode shows the radial to or from a VOR station and the CDI mode shows the course deviation to/from a VOR station. You can also input your intended radial to/from the VOR station and show the course deviation on the display. In the USA version, the duplex operation allows you to call a COM channel, while you are using VOR navigation.

(\* IC-A24/E only)



### External DC power jack

An external DC power jack allows for operation with the wall charger, BC-167S or the cigarette lighter cable, CP-20. When the battery pack is installed, simultaneous charging during operation is also possible. In addition, an optional battery case, BP-208N, is available.

### And more...

- 8.33kHz/25kHz channel spacing (Depending on version)
- Water resistant construction, equivalent to IPX4
- 200 memory channels (20 Ch × 10 banks) with 6 character names
- Dedicated 121.5MHz emergency key
- Side tone function allows you to hear your own voice via an external aviation headset.
- NOAA marine weather channels (IC-A24/A6 only)
- Tag scanning and memory bank scanning
- ANL (Auto Noise Limiter) for noise reduction



# Easy to use, rugged and compact with 700mW loud audio!



IC-A14

IC-A15S

## VHF AIR BAND TRANSCEIVERS

**IC-A14**    **IC-A14S**  
**IC-A15**    **IC-A15S**

Full keypad

Simple keypad

### 700mW\* loud audio

Because air band radios are usually operated in high-noise environments, it is essential for the radio to provide loud and clear audio. The IC-A14/S and A15/S employ a BTL amplifier that doubles the audio output, offering loud and clear audio that'll cut through cabin or tarmac noise. (\* Internal speaker only)

### Full keypad type or Simple keypad type

The IC-A14/A15 full keypad type allows you to input the channel or frequency directly and both have an exclusive button for the 121.5MHz emergency channel. The IC-A14 receives NAV and WX channels. The IC-A14S/A15S simple keypad type provide simpler operation with a minimum of buttons that is suitable for ground crews.

### Compact, light weight and rugged body

The IC-A14/S and A15/S are compact (only 120mm tall) and light weight (approx. 350g including antenna and BP-232N). The water resistant construction, equivalent to IPX4, provides reliable operation in wet conditions.

### Large capacity Lithium-Ion battery pack

With the 2000mAh (typ.) large capacity Lithium-Ion battery pack, BP-232N, the IC-A14/S and A15/S series provide stable output power and 18 hours long (approx.) operating time\*. The BP-261, battery case takes 6 AA (LR6) alkaline cells for convenient battery backup.

\* Typical operation, Tx:Rx: Stand-by=5:5:90.

### 200 channels with memory banks

A total of 200\* memory channels can be named with an 8-character channel name for easy recognition. For fast and simple operation, these channels can be grouped into 10 memory banks\*.

\* IC-A14 and A15 only. The IC-A14S and A15S have 100 memory channels and memory banks are not available.

### And more...

- 5W typ. (PEP), 1.5W typ. (CW) output power
- Side tone function allows you to hear your own voice via a third party aviation headset
- LCD backlight for night time operation
- ANL (Auto Noise Limiter) for noise reduction
- Low battery indication and beep alert
- Adjustable microphone gain setting
- BNC type antenna connector
- Optional BC-179 holder type battery charger

# *Innovative airband that's easier to install and see in more places*



IC-A210

## VHF AIR BAND TRANSCEIVERS

# IC-A210 • IC-A210E

### Large, bright OLED display

The IC-A210/E has an organic light emitting diode (OLED) display. The display offers many advantages in brightness, vividness, contrast, viewing angle and response time compared to a conventional display. In addition, the auto dimmer function adjusts the display for optimum brightness at day or night.

### Easy channel selection with dualwatch function

It's fast and easy to select any of the memory channels in the IC-A210/E. The "flip-flop" arrow button switches between main and stand-by channels. The dualwatch function allows you to monitor two channels simultaneously. In addition, the auto stack memory (history memory) stores the last 10 channels used and allows you to recall those channels easily.

### GPS memory function

When connected to an external GPS receiver\* equipped with an airport frequency database, the frequency data such as nearby airports can be transferred and made available in the IC-A210/E.

\* Ask your dealer for available GPS receiver details.

### 12V/24V DC power source

The built-in DC-DC converter accepts a 12/24V DC power source. The IC-A210/E is easily installed in most airplanes or vehicles.

### Intercom functions

The IC-A210/E has a built-in voice activated intercom function allowing the pilot to talk with the co-pilot via the headset. The IC-A210/E has adjustable audio level and squelch control functions.

### Easy installation

The IC-A210/E neatly fits inside the common mounting brackets used on most airplanes including Icom's IC-A200. Two types of rear-panel adapters are included, allowing for streamlined plug-in connectivity.

\* Ask your dealer for compatible panel mount radio details.

### Other features

- 8.33kHz/25kHz channel spacing (Depending on version)
- NOAA weather channel receive (USA version only)
- One touch access to 121.5MHz emergency frequency
- Side tone function • ANL (Automatic noise limiter) function
- Remote control capability • Time-out-timer
- PC programmable

# *Rugged and reliable for serious ground crew communications*



IC-A110

## VHF AIR BAND TRANSCEIVERS

# IC-A110 • IC-A110EURO

### Capable for use in any vehicle

The IC-A110/EURO is adaptable to vehicles working on a 12V, as well as a 24V power source.

### Front mounted loud speaker

A loud speaker mounted in front of the transceiver is free of any obstacles blocking audio reproduction, and, provides loud and clear audio.

### Dial selection

With a simple rotation of the dial, frequently used memory channels, or desired frequency selection can be made.

### Memory channel name display

Up to 7-character memory names can be assigned for each of the 99 channels. Allows simple and quick channel recognition and selection.

### Side tone function

The operator's transmitted messages and calls are audio modulated and can be heard by standard airband headsets\*, even in the most demanding airport operating conditions.

\* Option OPC-871 is required.

### Convenient on hook scan functions

Hanging the microphone on the microphone hanger activates the auto scan function. When released, the transceiver will return to the last used, or priority channel, depending on the selection.

### Usable in extreme cold








The adopted LCD is guaranteed usable in temperatures from  $-30^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$  ( $-22^{\circ}\text{F}$  to  $+158^{\circ}\text{F}$ ). Normal performance, as well as display indications, are guaranteed even in extremely cold areas.

### Other features










- 8.33kHz/25kHz channel spacing (Depending on version)
  - Various scan functions, such as VFO and priority scans
  - A total of 99 memory channels are available
  - 36W (PEP) of powerful output
  - Ideal compact size of 150(W) $\times$ 50(H) $\times$ 180(D) mm\* to mount in various types of vehicles
- \* 5.91(W) $\times$ 1.97(H) $\times$ 7.09(D) in












# OPTIONS FOR HANDHELD TRANSCEIVERS

	BATTERY PACKS			BATTERY CASES		WALL CHARGER	CHARGERS
MODEL NAME	<b>BP-210N</b> Ni-MH: 7.2V/1650mAh 	<b>BP-230N</b> Li-Ion: 7.4V/950mAh (min.) 980mAh (typ.) 	<b>BP-232N</b> Li-Ion: 7.4V/1900mAh (min.) 2000mAh (typ.) 	<b>BP-208N</b> AA (LR6)×6 cells 	<b>BP-261</b> AA (LR6)×6 cells 	<b>BC-167S</b> *1 12V/500mA 	<b>BC-119N</b> Rapid charger 
IC-A24/A24E	✓			✓		✓	✓ (Use with AD-101)
IC-A6/A6E							✓ (Use with AD-106)
IC-A14/A14S		✓	✓		✓		
IC-A15/A15S							

\*1 BC-167SA for 120V AC. SD for 230V AC. SV for 240V AC.

	CHARGERS				MULTI-CHARGERS		AC ADAPTERS		
MODEL NAME	<b>BC-144N</b> Rapid charger 	<b>BC-160</b> Rapid charger 	<b>BC-171</b> Regular charger 	<b>BC-179</b> Regular charger 	<b>BC-121N</b> Rapid multi-charger 	<b>BC-197</b> Rapid multi-charger 	<b>BC-145S</b> *2 16V/0.93A 	<b>BC-147S</b> *2 12V/200mA 	<b>BC-157S</b> 12V/6.6A 
IC-A24/A24E	✓				✓ (Use with AD-101)		✓ (Use with BC-119N/BC-144N)		✓ (Use with BC-121N/BC-197)
IC-A6/A6E					✓ (Use with AD-106)	✓ (Use with AD-122)	✓ (Use with BC-119N/BC-160)	✓ (Use with BC-171/BC-179)	✓ (Use with BC-121N/BC-197)
IC-A14/A14S		✓	✓	✓					
IC-A15/A15S									

\*2 BC-145/BC-147SA for 120V AC. SE for 230V AC. SV for 240V AC.







	CHARGER ADAPTERS			DC POWER CABLES		CIGARETTE LIGHTER CABLES		SPEAKER-MICROPHONE	HEADSET ADAPTER
MODEL NAME	<b>AD-101</b> 	<b>AD-106</b> 	<b>AD-122</b> (Supplied with BC-197, depending on version) 	<b>OPC-515L</b> 	<b>OPC-656</b> 	<b>CP-20</b> 	<b>CP-22</b> 	<b>HM-173</b> 	<b>OPC-499</b> 
IC-A24/A24E	✓ (Use with BC-119N/BC-121N)			✓ (Use with BC-119N)	✓ (Use with BC-121N/BC-197)	✓		✓	✓
IC-A6/A6E								✓	✓
IC-A14/A14S		✓ (Use with BC-119N/BC-121N)	✓ (Use with BC-197)	✓ (Use with BC-119N)	✓ (Use with BC-121N/BC-197)		✓ (Use with BC-179)	✓	✓
IC-A15/A15S								✓	✓

	BELT CLIPS			LEATHER BELT HANGERS		VEHICLE CHARGER BRACKET	CARRYING CASE	ANTENNA
MODEL NAME	<b>MB-86</b> 	<b>MB-94</b> 	<b>MB-103</b> 	<b>MB-96F</b> 	<b>MB-96N</b> 	<b>MB-130</b> 	<b>LC-159</b> 	<b>FA-B02AR</b> 
IC-A24/A24E	✓		✓	✓ (Use with MB-103)	✓		✓	✓
IC-A6/A6E								✓
IC-A14/A14S		✓		✓ (Use with MB-94)		✓ (Use with BC-160)		✓
IC-A15/A15S								✓

\* Some options may not be available in some countries, or unavailable due to no T/A. Please ask your dealer for details.

: Applicable  : Not applicable

# OPTIONS FOR MOBILE TRANSCEIVERS

	HAND MICROPHONES		HEADSET ADAPTER	DC POWER SUPPLY	MOUNTING BRACKETS	REAR PANEL ADAPTER
MODEL NAME	HM-161 	HM-176 Same as supplied with PS-80 and MB-53. 	OPC-871 	PS-80 	MB-53 	MB-113 For D-sub 15-pin connection system 
IC-A210		✓		✓	✓	✓
IC-A210E		(Use with PS-80/MB-53)		(IC-A210 only)		
IC-A110	✓		✓			
IC-A110EURO						

: Applicable  : Not applicable

# SPECIFICATIONS

		IC-A24 IC-A6	IC-A24E IC-A6E	IC-A14 IC-A14S	IC-A15 IC-A15S	IC-A210	IC-A210E	IC-A110	IC-A110EURO
Frequency range (unit: MHz)	TX	118.000–136.9917		118.000–136.975		118.000–136.992		118.000–136.975	
	RX	IC-A24 108.000–136.9917 161.650–163.275 IC-A6 118.000–136.9917 161.650–163.275	IC-A24E 108.000–136.9917 IC-A6E 118.000–136.9917	IC-A14 108.000–136.975 161.650–163.275 IC-A14S 118.000–136.975	118.000–136.975	118.000–136.992 161.650–163.275	118.000–136.992	118.000–136.975	
Number of memory channels		200ch (20ch × 10 banks)		200ch (20ch × 10 banks, IC-A14, A15) 100ch (IC-A14S, A15S)		240ch (Max.)	230ch (Max.)	99ch	
Channel spacing (depending on version)		25kHz/8.33kHz or 25kHz		25kHz		25kHz/8.33kHz or 25kHz	25kHz/8.33kHz	25kHz/8.33kHz or 25kHz	25kHz/8.33kHz
Power supply requirements		7.2V DC (Battery pack), 11.0V DC (External DC jack)		7.4V DC		13.8V or 27.5V DC (automatic selection)		13.75V or 27.5V DC (automatic selection)	
Current drain	TX High	1.8A* (* 1.5A typ. for 25kHz version)		1.5A		5.0A Max.		5.0A Max.	
	RX Stand-by	70mA typ.		50mA typ.		500mA		500mA Max.	
	RX Max. audio	500mA* (* 300mA typ. for 25kHz version)		500mA		4.0A		4.0A Max.	
Dimensions*1 (W×H×D)		54×129.3×35.5 mm; 2.13×5.09×1.4 in		53×120×36.9 mm; 2.09×4.72×1.45 in		160×34×271 mm; 6.3×1.34×10.67 in		150×50×180 mm; 5.91×1.97×7.09 in	
Weight (approx.)		430g; 15.2oz (with BP-210N and ANT)		350g; 12.3oz (with BP-232N and ANT)		1.0kg; 2.2lb		1.5kg; 3.3lb	
Operating temperature range		-10°C to +60°C	-20°C to +55°C	-10°C to +60°C	-20°C to +55°C	-20°C to +55°C		-30°C to +60°C	-20°C to +55°C
Frequency stability		1ppm* (* 5ppm for 25kHz version)		5ppm		5ppm	1ppm (0°C to +40°C)	5ppm	1ppm (0°C to +40°C)
RF output power (PEP/Carrier)		5.0/1.5W	5.0/1.5W* (* 3.6/1.0W typ. for 25kHz version)	5.0/1.5W typ.		8.0W typ. (Carrier)	6.0W typ. (Carrier)	36/9W typ.	9W (+2dB/-3dB)
Microphone impedance		100kΩ		150Ω		600Ω		600Ω	
Sensitivity	COM	1μV (0.5μV typ.*2) (6dB S/N)	1μV (0.71μV typ.*2) (12dB SINAD)	0.5μV typ. (6dB S/N)	0.71μV typ. (12dB SINAD)	2μV (6dB S/N)	2μV (12dB SINAD)	1μV (6dB S/N)	1.8μV (12dB SINAD)
	NAV (6dB S/N)	1μV (0.71μV typ.*2)	1μV (0.71μV typ.*2)	0.71μV typ.					
	WX (12dB SINAD)	0.4μV (0.22μV typ.*2)					1.4μV		
Selectivity	6dB (8.33/25kHz)	2.778/7.5kHz		7.5kHz (25kHz spacing)		2.778/3kHz	2.88/8.5kHz	2.778/8kHz	
	60dB (8.33/25kHz)	7.37/25kHz		25kHz (25kHz spacing)		7.37/22kHz	7.37/25kHz		
Spurious response rejection		60dB (COM/NAV)	70dB	60dB (COM/NAV)	70dB	74dBμ	70dB	74dBμ	70dB
Audio output power (at 10% distortion)		470mW* typ. with an 8Ω load (* 500mW typ. for 25kHz version)		700mW with an 8Ω load (Internal SP) 500mW with an 8Ω load (External SP)		5W with a 4Ω load (External SP) 60mW with a 500Ω load (Headphone)		10W typ. with an 8Ω load (External SP) 100mW typ. with a 500Ω load (Headphone)	

All stated specifications are subject to change without notice or obligation. \*1 Projections are not included. \*2 For 25kHz version.



## Applicable U.S. Military specifications

Icom makes rugged products that have been tested to and passed the following MIL-STD requirements and strict environmental standards.

Standard	Low Pressure Storage	Low Pressure Operation	High Temperature Storage	High Temperature Operation	Low Temperature Storage	Low Temperature Operation	Temperature Shock	Solar Radiation	Rain Blowing	Rain Drip	Humidity Induced	Humidity Aggravate	Salt Fog	Dust Blowing	Vibration	Shock Functional Shock	Shock Transit Drop
MIL-810 E Method. Procedure	500.3 I	500.3 II	501.3 I	501.3 II	502.3 I	502.3 II	503.3 I	505.3 I	506.3 I	506.3 II	507.3 II	507.3 II	509.3 I	510.3 I	514.4 I	516.4 I	516.4 IV
MIL-810 F Method. Procedure	500.4 I	500.4 II	501.4 I	501.4 II	502.4 I	502.4 II	503.4 I	505.4 I	506.4 I	506.4 III	507.4	507.4	509.4	510.4 I	514.5 I	516.5 I	516.5 IV
IC-A24/A24E, IC-A6/A6E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
IC-A14/S, IC-A15/S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
IC-A210, IC-A210E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
IC-A110, IC-A110EURO	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

The IC-A24/E, A6/E, A14/S, A15/S and IC-A210/A210E were tested to MIL-810 F requirements. The IC-A110/A110EURO was tested to MIL-810 E requirements.



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