# 0 ICOM

# HAM RADIO PRODUCTS

### All Band Transceivers

### Mobile Transceivers

### Handheld Transceivers

Base Station Transceivers



1295.000.00

1.09 1.00

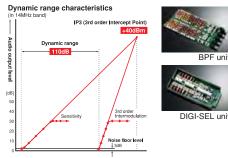




#### +40dBm IP3

#### (3rd order Intercept Point)

Icom's considerable analog RF circuit experience combined with cutting-edge digital technology results in an astonishing 110dB receiver dynamic range and a +40dBm IP3 in the HF bands – the first in ham radio! To achieve this superior receiver performance, Icom's engineering team completely re-engineered all of the analog circuitry to match the DSP system.



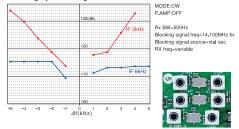
Input level at the antenna connector [dBm] -----

#### Three Hi-spec 1st IF Filters (Roofing Filter)\*1

In addition to selectable 6kHz and 15kHz roofing filters, the IC-7800 has a 3kHz roofing filter before the 1st IF amplifier. It provides 134dB\*<sup>2</sup> (approx.) of blocking dynamic range and allows you to pull out a weak signal while blocking strong adjacent signals. (The FM mode filter is fixed at 15kHz.)

<sup>\*1</sup> Icom calls the roofing filters "hi-spec 1st IF filters," because their performance is much better than regular IF filters. <sup>\*2</sup> At 14.1MHz receive, with 5kHz separation of interference signal.





Hi-spec 1st IF filters (Roofing filters)

#### Two Completely Independent Receiver Circuits

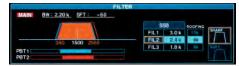
Dual receivers allow you to receive on two different bands simultaneously in different modes, without the receivers affecting each other.

#### **Quad Processing**

The IC-7800 incorporates four independent, 32-bit DSP units and 24-bit AD/DA converters. By having four independent DSP units, the radio responds to operator changes in an instant, as each DSP unit is dedicated to a single function. While each receiver has its own dedicated DSP unit, there is a DSP unit for transmit as well as a DSP unit for the spectrum scope.

#### **Digital IF Filter**

Icom's digital IF filters give you performance that is not possible with crystal or mechanical filters. They allow the operator to adjust filter shape (sharp or soft), filter bandwidth, and center frequency characteristics, without missing the action. Multiple filter memories store the most-recently used filter settings for each operating mode.



Filter preset screen

#### **Ultra High Stability OCXO Unit**

The IC-7800 uses the OCXO (Oven Control Crystal Oscillator) unit which is stable to within  $\pm 0.05$ ppm from 0°C to 50°C. This specification means that even on the 50MHz band, frequency error is less than 2.5Hz!

## **Base Station** Transceivers



#### 200W Output Power, Built-in

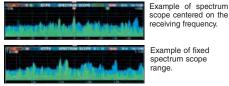
The power amplifier uses push-pull power MOS-FETs with a 48V DC supply. They provide a powerful 200W of output at 100 percent duty cycle. An effective cooling system maintains internal temperatures within a safe range and prevents thermal runaway.



PA Unit and heat sink

#### **Real-time Spectrum Scope**

With its own dedicated DSP unit, the IC-7800's spectrum scope provides excellent sensitivity and 80dB of dynamic range. This scope rivals many of today's commercial test instruments. The display spans ±2.5kHz to ±250kHz in 7 steps, covering up to 500kHz of spectrum!



scope centered on the receiving frequency.

Example of fixed spectrum scope

#### 7-inch Wide Color TFT LCD

An active matrix 7-inch (800×400 pixel) TFT color display was selected for the IC-7800. This large display shows main and sub-band frequencies, settings, and operating parameters, as well as the spectrum scope, S-meter, and RTTY/PSK31 decoded messages. The "virtual" S-meter needle swings smoothly and accurately, just like an analog meter.

#### **Other Outstanding Features**

[Antenna and receiver] • 4 antenna connectors with automatic antenna selector Automatic antenna tuner
 Special preamp and mixer circuit optimized for 50MHz band 3-step manual notch filter
 Digital twin PBT eliminates interference from adjacent signals 16-step noise reduction

[CW mode] DSP-controlled CW keying waveform shaping • Multi-function electronic keyer with adjustable keying speed, dot-dash ratio and paddle polarity • APF selection (soft/ sharp)

[Operation] • High-quality digital voice memory • Triple band stacking register • Built-in RTTY and PSK31 modulator and demodulator • Message memory for CW, RTTY and PSK31 operations • Twin peak audio filter for RTTY operation • CF memory card for storing customized personal settings • 101 memory channels • AGC control for fine tuning of the AGC time constant • Microphone equalizer and adjustable transmit bandwidth . FFT scope averaging function for PSK and RTTY decode Screen saver function

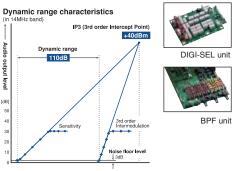






#### +40dBm IP3 (3rd order Intercept Point) and 110dB Dynamic Range

The IC-7700 employs mechanical relay BPF switching, a digitally tuned pre-selector, and three hi-spec 1st IF filters (roofing filters) in a clean and simple double conversion superheterodyne design. By balancing the analog and DSP functions, the IC-7700 provides superior sensitivity simultaneously with a superb dynamic range of 110dB, and +40dBm IP3 (even in USB mode with 2.4kHz filter bandwidth).



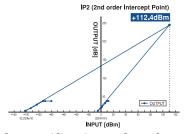
Input level at the antenna connector [dBm] —

#### More than +110dBm IP2 (2nd order intercept point)

An IP2 point of more than +110dBm\* means 2nd order distortion from strong broadcast stations will be completely eliminated. The continuous pursuit of leading analog circuit engineering makes it possible to achieve this leading edge level of performance.

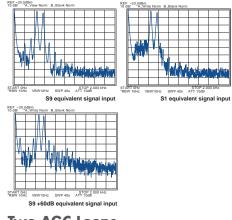
\* The IP2 figure is a typical value.

\*\* Measurements were made using custom equipment, due to the limits of normal signal generators (SG) and duplexers to +85dBm.



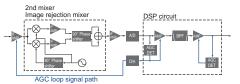
#### **High Specification Inband IMD**

Inband IMD (Intermodulation Distortion) creates undesired spurious signals as a consequence of non-linear processing of multiple signals. All (2nd, 3rd or even higher) orders of IMD performance are superior in the IC-7700. The improvement will be especially evident in CW mode. You'll notice the difference as you copy weak signals without internal distortion or noise.



#### **Two AGC Loops**

The IC-7700 has two AGC loops. The AGC voltages are derived both before and after the digital IF filter in the DSP unit. The first AGC loop prevents the saturation of the 1st IF amplifier from strong signals outside the passband filter. The second AGC loop detects the AGC voltage at the digital IF filter output which contains only the desired signal, obtaining full performance from the digital IF filter.



## **Base Station** Transceivers



#### Three Hi-spec 1st IF Filters (Roofing filter)

Now a proven formula, the IC-7700 employs custom three hi-spec 1st IF filters (roofing filters) to achieve approximately 134dB<sup>\*1</sup> of blocking dynamic range.

\*1 At 14.1MHz receive, with 5kHz separation of interference signal.



Hi-spec 1st IF filters (Roofing filters)

#### 7-inch Wide Color TFT LCD

An active matrix 7-inch (800×400 pixel) TFT color display shows main and sub-band frequencies, settings, and operating parameters, as well as the spectrum scope, S-meter, and RTTY/PSK31 decoded messages in vivid color. The "virtual" S-meter needle swings smoothly and accurately, like an analog meter.

#### **Real-time Spectrum Scope**

With its own dedicated DSP unit, the IC-7700's spectrum scope provides excellent sensitivity and 80dB of dynamic range. The display spans ±2.5kHz to ±250kHz in 7 steps, covering up to 500kHz of spectrum!

#### **USB Connectors on the Front Panel** Two USB connectors on the front panel allows you to easily connect a USB keyboard

or USB flash drive to save transceiver settings, update firmware, or transfer settings to another IC-7700.



Two USB connectors

#### **Other Outstanding Features**

[Antenna and receiver] • 4 antenna connectors with automatic antenna selector • BNC type RX IN/OUT connectors • Automatic antenna tuner • Preamp for 50MHz band • 3-step manual notch filter • Digital twin PBT eliminates interference from adjacent signals • 16-step noise reduction

[CW mode] • DSP-controlled CW keying waveform shaping • Multi-function electronic keyer with adjustable keying speed, dot-dash ratio and paddle polarity • APF selection (soft/sharp) • Double key jack system

[Operation] • Built-in power supply • High quality digital voice memory • Message memory for CW, RTTY and PSK31 • Built-in RTTY and PSK31 modulator and demodulator • Twin peak audio filter for RTTY operation • Triple band stacking register • 101 memory channels • AGC control for fine tuning of the AGC time constant • Microphone equalizer and adjustable transmit bandwidth • FFT scope averaging function for PSK and RTTY decode • Screen saver function







#### Dual DSP for Transmitter/Receiver and Spectrum Scope

Two separate 32-bit DSP units power the transmitter/receiver and spectrum scope. These processors give the IC-7600 high performance comparable to our top-of-the-line

IC-7800 and IC-7700, thanks to the combination of dual DSP and our analog RF design expertise.



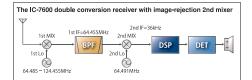
Dual DSP

#### 104dB Dynamic Range and +30dBm IP3 (3rd order Intercept Point)

An astonishing 104dB receiver dynamic range and +30dBm IP3 in the 14MHz band without sacrificing receiver sensitivity is a standard specification be fitting the IC-7600. Even a weak signal adjacent to strong signals is clearly received by the IC-7600.

#### Double Conversion Superheterodyne Improves Inband IMD

The IC-7600 employs a double conversion superheterodyne system which has an image rejection mixer for the 2nd mixer stage. When compared to a typical triple conversion system, the double conversion system is more difficult to implement but it dramatically reduces signal distortion and provides a high-linearity RF signal to the DSP processor.



#### 5.8-inch Ultra-wide Viewing Angle TFT Display

The IC-7600's ultra-wide viewing angle display has excellent color rendering and high contrast ratio with fast response time. These features allow the spectrum scope and simulated analog meters to move smoothly and naturally.

### Dual AGC Loops Controlled by DSP

The IC-7600 has dual AGC loops, one analog and one digital, both under DSP control. This architecture prevents strong adjacent signals from "pumping" the AGC and allows maximum dynamic range in the DSP.

#### Three Built-in 1st IF (roofing) Filters, Including 3kHz

The IC-7600 has three built-in 1st IF (roofing) filters ahead of the 1st IF amplifier stage. The 3kHz filter is especially effective in CW and SSB modes, eliminating overloading caused by strong signals just outside the passband.

#### **Other Features**

[Antenna and receiver] • 2 TX/RX antenna connectors and RX antenna connector • Automatic antenna tuner • Auto notch filter and manual notch filter • Digital twin PBT • 16-step noise reduction • Dual watch

[Transmitter] • Tx monitor function • Tone encoder • VOX operation • All mode power control

[CW mode] • CW Waveform controlled by the DSP • Multi-function electronic keyer with adjustable keying speed, dot-dash ratio and paddle polarity • APF selection (soft/sharp) • Double key jack system

[**Operation**] • Spectrum scope • USB connectors on the front and rear panel • RTTY/PSK31 operation with a USB keyboard • 2 clocks show local and UTC time • High quality digital voice memory • Triple band stacking register • Message memory for CW, RTTY and PSK31 operations • 101 memory channels • Microphone equalizer and adjustable transmit bandwidth • FFT scope averaging function for PSK and RTTY decode • Programmable band edge beep • Screen saver function



Faster DSP unit and in-house DSP expertise

Double-conversion superheterodyne

+30dBm class third-order intercept point (IP3)

### Faster DSP Unit and In-house DSP Expertise

Icom brings out the best DSP performance combining more than ten years of DSP technical know-how and much faster DSP processors. Icom's in-house DSP experts have developed a IC-746PRO series replacement that every operator will be proud to own. In addition to the higher speed DSP, the AD/DA converter, AK4620, provides a higher dynamic range and superior S/N ratio.





<DSP unit> ADSP-21369 Internal clock speed: 333MHz 32-bit floating point DSP Max. performance: 2000MFLOPS

ADC Signal/(Noise+Distortion):100dB ADC Dynamic range, S/N: 113dB DAC Signal/(Noise+Distortion): 97dB DAC Dynamic range, S/N: 115dB

#### **Double-conversion Superheterodyne**

Introduced with the IC-7800, a conversion superheterodyne design with an image rejec-

tion mixer for the 2nd mixer stage is employed in the IC-7410. This receiver design not only reduces the electronic complexity, it greatly reduces the number of internal distortion points from older triple and quadruple conversion receivers.

#### +30dBm Class IP3 (3rd Order Intercept Point)

In Icom's continuing efforts to create the best receiver, the design of the IC-7410 incorporates the latest in DSP software technology and Icom's analog RF circuit experience for a +30dBm\* (typ.) IP3. The end result, clear reception of weak signals surrounded by QRM from broadcast and neighboring ham stations.

\* Typical in 14MHz band. Spacing=100kHz

#### Three First IF Filters (3/6/15kHz)

The IC-7410 accommodates three 1st IF filters with the 15kHz, 1st IF filter supplied, while the 3kHz FL-431 and 6kHz FL-430 are optional for better receiver performance by protecting the desired signal from nearby strong signals. (Fixed for 15kHz in FM mode.)

#### Wide Range of DSP Features

Using the latest algorithms, the digital features give flexibility and speed needed for working in tough RF conditions.

 Digital IF filter allows you to choose filter width and shape factor
 Digital Twin PBT eliminates interference by changing the IF bandwidth and/or shifting the IF frequency
 AGC loop management with programmable AGC time constant • Auto/manual Notch Filter provides more than 70dB attenuation and eliminates unwanted beat tones • Noise Reduction can enhance the receiver's signalto-noise ratio • Noise Blanker reduces interference from pulse-type noise • RF Speech Compressor increases average talk power, improving signal strength and readability

• User programmable tone control: microphone equalizer, SSB transmit passband width, receive HPF/LPF and receive audio equalizer

#### **Other Features**

• Built-in voice synthesizer • User programmable band edge beep • VSC (Voice Squelch Control) function • Two preamplifier types: Preamp 1: Improving IMD characteristics, Preamp 2: High gain preamplifier • 20dB builtin attenuator • Built-in automatic antenna tuner • CTCSS tone encoder and decoder

• Triple band stacking register • Quick split and frequency lock functions • RIT and  $\Delta$ Tx variable up to ±9.999kHz • SSB/CW synchronous tuning • 1Hz pitch tuning and display

• ±0.5ppm of high frequency stability

Program, memory, select memory, mode select and ⊿f scans
 Automatic tuning steps
 AH-4 control circuit
 Large independent MIC/RF power and Notch knobs
 Large, multi-function LCD
 USB connector for PC control
 RTTY demodulator and decoder

- Simple band scope 
   Ample CW functions
- High frequency stability Large heat sink
- Optional RS-BA1 IP remote control software





Rugged design for outdoor use

100W output power

#### **IF DSP**

The latest IF DSP technology is employed in the IC-7200. While the IC-7200 is an entry-class transceiver, advanced digital features such as flexible filter width and shape setting, digital noise reduction and auto notch filter are comparable to higher class models.

#### Rugged Design for Outdoor Use

The rugged design of the IC-7200 means your enjoyment of this rig is not limited only to your shack. Waterproof protection technologies used in Icom's marine radios are applied to the buttons and knobs on the front panel to provide a basic measure of protection against water intrusion\*. \* IC-7200 is NOT waterproof.

#### AGC Loop Management

Distortion and blocking from strong nearby signals are prevented by placing DSP functions inside the AGC loop. The AGC time constants are selectable from fast, slow and off for each operating mode.

#### **High Stability Transmitter**

The DDS (Direct digital synthesizer) creates a clear, clean transmit signal and improves the carrier-to-noise ratio. A dual-fan cooling system provides stable high quality output even during high duty cycle operation.

#### **Digital Twin PBT**

Tailor your IF passband with the Twin PBT by electronically shifting the upper and lower edges of the IF filter. By using the concentric front-panel knobs, you can either narrow the IF passband, or shift the entire passband to eliminate interfering signals.

#### **Manual Notch Filter**

The manual notch filter delivers more than 70dB of attenuation. Strong interfering tones will be eliminated without adversely affecting the AGC loop performance. On the bottom right of the front panel, a dedicated control knob adjusts the notch filter frequency.

#### **Other Features**

- RIT VOX ±0.5ppm frequency stability
- LCD backlight (Hi/Lo/Off) CI-V interface

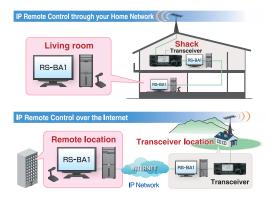
201 memory channels
Built-in 20dB attenuator
Preamplifier
Dial lock
Auto tuning step function
1Hz step tuning
Band stacking register
Built-in voice synthesizer
Quick split
Front facing speaker
USB connector for PC control

# IP REMOTE CONTROL SOFTWARE

#### Optional RS-BA1 IP Remote Control Software

The optional RS-BA1 allows you to use the transceiver from another room using your home network, or even from a remote location over the Internet. The RS-BA1 has low voice latency.





## **Base Station** Transceivers



## HF/VHF/UHF TRANSCEIVER

IF DSP - First in its class

2-point Manual Notch Filter more than 70dB attenuation

2.5-inch color TFT display

#### IF DSP — First in Its Class

Digital IF filter, manual notch filter, digital twin PBT, AGC loop management, digital noise reduction and more. The latest digital features are incorporated in this compact radio by two DSP chips that deliver superior processing performance. Of course, those digital features work on all ham bands — HF, 50, 144MHz to the 430/440MHz band.



Simple, straightforward operation with keypad

C - 718

General coverage receive with superior performance

**Optional DSP capability** 

#### Simple Operation

The IC-718 is equipped with a minimum number of buttons and controls for simple feature selection. The 10-key pad on the front panel allows direct entry of an operating frequency or a memory channel number. The auto tuning step function is activated when turning the dial quickly and helps speed up tuning. The band stacking register is convenient when changing operating bands.

#### 2-point MNF (Manual notch filter)

Pull out the weak signals in crowded band conditions with Icom's new two-point MNF (manual notch filter). Apply 70dB of rejection to two signals at once! Notch width is adjustable – wide, middle and narrow – and an auto-tuning notch filter is available, too.

#### 2.5-inch Color TFT Display

The 2.5-inch color TFT display presents numbers and indicators in bright, concentrated colors for easy recognition. You can choose from 3 background colors and 2 font styles to suit your preference. The video output jack allows you to view a magnified display on an external monitor\*.

\* 3.5(d) mm monaural cable is required.

#### **Other Outstanding Features**

• 35W output on 430/440MHz band •  $\pm 0.5$  ppm high stability crystal unit • 8 direct access buttons for user-friendly operation • Digital voice recorder for transmit and receive • Built-in RTTY demodulator • Remote control microphone, HM-151 • Fixed-mode and centermode band scope • Multi-function meter and SWR graphic displays • Front panel separation with optional separation cable • Built-in voice synthesizer

#### Front Mounted Loud Speaker

The IC-718 has the speaker mounted on the front panel. With the speaker facing the operator, audio will be heard clearly and directly while operating.

#### **Optional DSP Capability, UT-106**

The optional DSP unit\* gives you noise reduction and auto notch filter functions for extra receiver performance.



Optional UT-106

\* Already built-in to USA version.

#### **General Coverage Receiver**

The IC-718 has 0.03–29.999999MHz\* general coverage receive capability.

\* Guaranteed range: 0.5-29.999999 MHz

#### **Other Features**

Built-in electronic keyer
Built-in microphone compressor
Combined squelch and RF gain control
Preamplifier and attenuator
101 memory channels
CW full break-in
IF shift interference rejection
1Hz tuning

• VOX function for hands-free operation

• Optional automatic antenna tuner • Digital S/RF meter



### **HF/VHF/UHF TRANSCEIVER** IC-9100

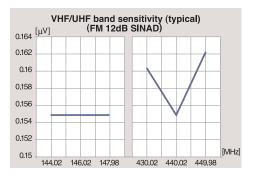
Superb readability in the VHF/UHF band

> **Ready-to-install** 1200MHz band unit

Satellite mode operation

#### Superb Readability in the **VHF/UHF Band**

The IC-9100 provides excellent receiver sensitivity in the VHF/UHF bands, equivalent to the highly-acclaimed previous VHF/UHF dedicated model, the IC-910H. The IF DSP greatly improves intermodulation and noise elimination and offers better readability than the IC-910H.



#### Ready-to-install 1200MHz Band Unit

By installing the optional UX-9100 1200MHz band

unit, you can be operational on the 1200MHz band immediately The IC-9100 fully covers the HF/50, 144, 430/440 and 1200MHz amateur bands in multiple modes.



#### **Satellite Mode Operation**

The satellite mode synchronizes the uplink (transmitting) and downlink (receiving) frequencies, and tracks the frequencies in the same tuning step. This function matches both normal and reverse mode satellites. Compensation of the Doppler effect can be performed easily. 20 satellite memory channels store frequencies, mode and tone settings for quick set-up.

#### **Double Conversion Superheterodyne**

Icom's basic idea about the best receiver circuit is to reproduce high fidelity audio without internal distortion. Our answer to achieve this goal is to adopt a double conversion superheterodvne svstem\* The double conversion svstem simplifies the electronic circuitry and reduces the number of components which cause internal distortion. The digital signal processing (DSP) technologies and image rejection mixer make it possible to adopt this system.

\* A triple conversion system is used for the 1200MHz band.

#### +30dBm Class IP3

Using receiver design techniques introduced in Icom's highest grade HF transceivers, the IC-9100 has an IP3 of +30dBm\* in the HF band. Even a weak signal adjacent to strong signals is clearly received by the IC-9100. \* Typical in 14MHz band. Spacing=100kHz

#### Three First IF Filters (3/6/15kHz) for HF/50MHz Band

The IC-9100 comes with a built-in 15kHz 1st IF filter and can accept up to two optional filters (3kHz FL-431 and 6kHz FL-430). By changing

the first IF filter width according to the operating mode, the desired is protected from adjacent inband signals at the later stages for better receiver performance.



1st IF filters (6kHz, 3kHz)

#### **Other Features**

• Optional D-STAR\* DV mode (\* Digital Smart Technology for Amateur Radio) • Independent dual receivers • 32-bit floating point DSP & 24-bit AD/DA converters • AGC loop management

• Digital IF filter • Digital twin PBT and IF shift Noise reduction 
 Noise blanker 
 RF speech

compressor • Adjustable transmit bandwidth • HF/50MHz, 144MHz 100W, 430/440MHz 75W

• RTTY demodulator and decoder • Ample CW functions • Built-in Antenna Tuner for HF/50MHz band • Manual notch filter and auto notch filter Large, Multi-function LCD 
 USB connector for PC control • Optional CS-9100 programming software • Optional RS-BA1 IP remote control software



## Mobile Transceivers



UT-123 D-STAR unit and GPS receiver

#### **VHF/UHF DUAL BAND TRANSCEIVER** IC-2820H

#### **D-STAR DV mode plus GPS receiver** with optional UT-123

Wideband receiver\*1 with diversity receive capability

**50W output power** on 144 and 430(440)MHz band



#### D-STAR DV Mode + GPS Receiver with Optional UT-123

The optional UT-123 module provides D-STAR DV mode operation plus GPS receiver capability. Simultaneously send your current position, own callsign and up to a 20-character message along with your digital voice transmission. When location is provided by a calling station, the transceiver displays the distance and direction to the station.

#### Wideband Receiver with **Simultaneous Receive Capability**

The transceiver receives 118-549.995 and 810-999.990MHz\*1 with dualwatch receiver capability that allows you to receive two bands simultaneously (including within a single band). \*1 Receiver range differs depending on version.

#### **Other Features**

• The large 93×28 mm (3.66×1.1 in) full dot-matrix display • Separate controller from main unit • 50W output on both VHF/UHF bands . Total of 522 memory channels • 16 DTMF memory channels • 50 CTCSS and 104×2 DTCS encoder/decoder\*2 • Diversity receive capability • ±2.5ppm high frequency stability with TCXO unit • Green to amber variable display background • 9600 bps packet terminal, mini- DIN (6-pin) connector • Max 45 channel/ sec. high speed scan capability in programmed scanning mode • Band scope function

\*2 FM mode only.



#### **VHF/UHF DIGITAL TRANSCEIVER ID-880H**

#### **D-STAR DV mode capability**

DR (D-STAR repeater) mode for easy setup

CS-80/880 free download software

#### **D-STAR Repeater List and DR Mode Operation**

The D-STAR repeater list stores up to 300 channels of repeater call signs, frequencies, gateway call signs, duplex direction and offset frequency with channel names of up to 8 characters. The D-STAR repeater (DR) mode operation makes it easier to use a D-STAR repeater.

#### **GPS Position Reporting Functions**

Your position data is shown on the display and can be sent to other station\*1. In addition, the GPS A mode assists in D-PRS mode operation to send your position information to an APRS server.

#### **Other Features**

• CS-80/880 free download software • Total of 1052 memory channels • 16 DTMF memories • 50 CTCSS and 104×2 DTCS encoder/

decoder\*2 • Wideband receiver\*3 • Detachable controller • Backlit LCD • Auto power off and on • Power save

- \*1 3rd party GPS receiver is required.
- \*2 FM mode

\*3 Receiver range differs depending on version.



128kbps data and 4.8kbps digital voice communication

PC remote control software

Wireless Internet access

#### 4.8kbps DV (digital voice) Mode and 128kbps\* DD (data) Mode

The ID-1 has three modes - analog FM, digital voice and data mode operation. The builtin AMBE® vocoder chip provides digitally modulated, clear audio as well as 128kbps wireless data transmission. In DD mode operation, vou can use various Internet applications wirelessly by connecting to a PC with Ethernet and USB cables.

\* Maximum speed.

#### **PC Remote Controller Supplied**

The PC controller software is supplied with the ID-1. When the ID-1 is connected to a PC, most functions of the ID-1 can be controlled from the PC screen. The controller software is convenient for editing memory channels, writing short data messages, and checking received call records, etc.

#### **Other Features**

 Wireless Internet access\*1 • Digital callsign squelch (DSQL) and digital code squelch (CSQL) • Short data message in DV mode • Automatic Frequency Control (AFC) function for FM and DV mode • S-meter squelch • Programmed, memory and select mode scan . Break-in communication • Enhanced Monitor Request (EMR) function • Auto repeater function for FM mode\*2 • Stand-by beep \*1 Within a D-STAR repeater service area.

\*2 Depending on version.

## Mobile Transceivers



# 144MHz FM TRANSCEIVER

65 Watts of RF Output Power with Heavy Duty Endurance

Powerful 4.5W Audio Output Provides Loud and Clear Audio

Tested to the Latest MIL-STD 810 G Specifications

#### Stable 65W of Output Power

The IC-2300H can generate 65W of output power. The rugged aluminum diecast provides effective heat dissipation and keeps RF output even during high duty cycle continuous transmission.

Tested to the MIL-STD 810 G Specifications The IC-2300H is built tough to protect from a rough road. It has been tested to and has passed the latest MIL-STD 810 G specifications including shock, vibration and temperature tests.

#### **Other Features**

• A Total of 207 memory channels • Built-in CTCSS and DTCS encoder/decoder • Simple operation • Multiple scan functions • Power supply voltage display • Wide/narrow channel setting • 4.5W (typical) loud audio • Reduced depth dimensions • DTMF autodial • Time-out timer • Repeater lockout • Automatic power off • S-meter squelch · Selectable LCD backlight color (amber, yellow and green) • Weather channel receive and alert function (USA version only) • Automatic repeater function (USA version only) • Selectable squelch delay from short and long . Squelch attenuator reduces suppression from strong signals · PC to transceiver and transceiver to transceiver cloning capability





# 144MHz FM TRANSCEIVER

Unbeatable 75W output power with efficient cooling fan

Total 200 memory channels with 10 memory banks

Remote control microphone, HM-133V

#### 75W of Output Power

The combination of Icom's one piece, die-cast aluminum chassis and MOS-FET power amplifier delivers a powerful 75W output power. Your communications will get through.

#### **Dynamic Memory Scan (DMS)**

With 200 alphanumeric memory channels, lcom's exclusive DMS system gives you flexibility over your scanning lists never offered before in a 2m mobile, fully custom-izable into 10 memory banks.

#### **Other Features**

• Front mounted speaker • 10 DTMF memory channels • DTMF pager/code squelch function with optional UT-108 • 50 CTCSS and 104×2 DTCS encoder/decoder • Pocket beep and tone scan • Squelch attenuator • Weather channel with weather alert\* • Narrow band FM mode\* • Cooling fan control • Squelch delay • Amber and green, dual color LCD

\* U.S.A. version only.



## Handheld Transceivers



#### IPX7 GPS

#### **UHF DIGITAL TRANSCEIVER ID-31A**

#### Lightweight & Compact Body

The ID-31A has a compact 58×95×25.4mm (2.28×3.74×1in) body, and weighs only 225g (7.94oz) with battery pack and antenna (approx.). It's easy for carrying around all the time, anywhere.

**Compact &** Lightweight

**Built-in GPS Receiver** 

**IPX7** Submersible Construction

The ID-31A provides superior waterproof pro-

tection equivalent to IPX7 (1m depth of water

for 30 minutes). Ideal for use in harsh outdoor

The built-in GPS receiver shows your current

position and altitude on the display and offers

a position reporting function in DV mode. The

GPS log function logs your position informa-

tion at regular intervals (1 second-60 sec-

onds, depending on the setting) and memo-

rizes this in the microSD card to export to

your PC. In addition, the GPS-A mode assists

**IPX7** Submersible

**Built-in GPS Receiver** 

#### **Other Features**

· Automatic speech function announces the received call sign • Digital code squelch • Digital call sign squelch . One touch reply function • DR (D-STAR Repeater) mode • Automatic reply function • Analog FM mode (Wide/Narrow) • Built-in CTCSS/DTCS encoder and decoder (for analog FM) • 16 DTMF memory channels (24 digits) • Squelch release function to monitor a weak signal • Automatic repeater function\* (\* Depending on version) • Optional CT-17, CI-V level converter for remote radio control • Auto power save • Auto power off • Clock function • Priority watch • Key lock function

**D-STAR DV mode capability** 

**GPS** position reporting function with optional GPS speaker-mic\*1

environments.

**IPX7** Submersible

#### **Rugged Submersible Protection**

The IC-92AD and optional HM-175GPS have superior waterproof protection and is equivalent to IPX7 (1m depth of underwater for 30 minutes), which vou can count on in harsh outdoor environments.

#### **Optional GPS Speaker-microphone**

Used with the optional HM-175GPS, the IC-92AD shows your position data on the display and offers automatic position reporting in DV mode. In addition, the GPS-A mode enables easy D-PRS system operation.

#### Wideband Receiver with **Dualwatch Capability**

The IC-92AD has dualwatch receiver capability, allowing you to receive\*2 on two bands simultaneously (including the same band).

#### **Other Features**

in easy D-PRS mode operation.

• 5 Watts (typical) output • Total of 1304 memory channels • Large dot-matrix LCD • 10 DTMF memories • 50 CTCSS and 104×2 DTCS encoder/ decoder\*3 • External DC power jack (10-16V DC acceptable) • Simple band scope • Optional PC remote control capability (with RS-92) • Built-in voice recorder records an incoming call for up to 30-seconds (approx., DV mode) · Backlit LCD

· Auto power save, power off and power on · 26 memory banks with selected bank and bank link scanning

\*1 Optional GPS speaker-microphone, HM-175GPS required.

- \*2 Receiver range differs from depending on version.
- \*3 FM mode



Photo includes optional HM-175GPS





D-STAR DV mode capability

The D-STAR repeater list stores up to 300

channels of repeater call signs, frequencies,

gateway call signs, duplex direction and offset

frequency with channel names of up to 8 char-

acters. The D-STAR repeater (DR) mode opera-

tion makes it easier to use a D-STAR repeater.

**GPS Position Reporting Functions\*1** 

Your position data is shown on the display

and can be sent to other station. In addition,

the GPS A mode assists in D-PRS mode

**DR Mode Operation** 

DR (D-STAR repeater) mode for easy setup

#### CS-80/880 free download software

**D-STAR Repeater List and** operation to send your position information to an APRS server.

#### **Other Features**

· CS-80/880 free download cloning software • Total of 1052 memory channels • 16 DTMF memories • 50 CTCSS and 104×2 DTCS encoder/decoder\*2 • Wideband receiver\*3 • External DC power jack (10-16V DC) • Compact body with water resistance (Equivalent to IPX4) • Backlit LCD • Auto power off and on • Power save \*1 Optional GPS speaker-microphone, HM-189GPS required. \*2 FM mode

\*3 Receiver range differs depending on version.

## Handheld Transceivers



750mW (typ.) loud audio with a BTL amplifier

Powerful 5.5W of output power

IP54 and MIL-STD-810 rugged construction



#### 750mW Loud Audio

The IC-V80 uses a BTL (bridgetied load) amplifier that doubles the audio output. The 36mm large speaker delivers 750mW of loud and intelligible audio\*. Great for noisy environments.

\* Typical value using with internal speaker.

#### **Other Features**

- A total of 207 memory channels
- Built-in CTCSS/DTCS
- Internal VOX function
- WX channel and weather alert function (USA version only)
- Program, memory, skip, priority and tone scans
- Power save function
- BNC type antenna connector

- Automatic repeater function (USA version only)
- TOT (time out timer) setting
  Repeater lockout and busy channel lockout
- PC programmable with optional CS-V80
- Transceiver-to-transceiver cloning with optional OPC-474
- Direct keypad frequency entry
- DTMF autodial memories
- Auto power off
- LCD backlight

700mW Loud Audio

noisy environments.

**Other Features** 

\* Using with internal speaker.

External DC power jack

• Built-in CTCSS/DTCS

Internal VOX function

tion (USA version only) • Power save function

construction

The IC-T70A uses a BTL (bridge-

tied load) amplifier that doubles

the audio output. The 36mm large

speaker delivers 700mW of loud

and intelligible audio\* even in

A total of 302 memory channels

• IP54 and MIL-STD-810 rugged

· WX channel and WX alert func-

• Wide/narrow channel spacing



- SMA type antenna connector
  - Automatic repeater function (USA version only)
  - TOT (time out timer) settingRepeater lockout and busy
  - channel lockoutPC programmable with optional CS-T70
  - Transceiver-to-transceiver cloning with optional OPC-474
  - Direct keypad frequency entry
  - 16 DTMF autodial memories
  - Auto power off LCD backlight
  - Wide/narrow channel spacing

## **OPTIONS FOR BASE STATION TRANSCEIVERS**

	HAND MICE	ROPHONES		DESKTOP MI	CROPHONES		EXTERNAL SPEAKERS		
MODEL NAME	HM-36	HM-151	SM-50	SM-30	SM-20	SM-27	SP-10	SP-21	SP-23
	\$	6			J.	J.			
IC-7800	~		~	~	~				
IC-7700	~		~	~	~				
IC-7600	~		~	~	~				<ul> <li>✓</li> </ul>
IC-7410	~		~	~	~			<ul> <li>✓</li> </ul>	<ul> <li>✓</li> </ul>
IC-7200	~		~	~	~	~	~	V	
IC-7000		~	(Use with OPC-589)	(Use with OPC-589)	(Use with OPC-589)		~		
IC-718	<ul> <li>✓</li> </ul>		~	~	~	<ul> <li>✓</li> </ul>		~	<b>v</b>
IC-9100	<ul> <li>✓</li> </ul>		<ul> <li>✓</li> </ul>	<ul> <li>✓</li> </ul>	<ul> <li>✓</li> </ul>			V	<b>v</b>

	EXTERNAL SPEAKERS	DC POWER	DC POWER SUPPLIES A		ANTENNA TUNERS		FOLDED DIPOLE ANTENNA FILT		ERS
MODEL NAME	SP-33	<b>PS-125</b> 13.8V/25A 6-pin type	<b>PS-126</b> 13.8V/25A 4-pin type	AH-2b Covers 7–54MHz	AH-4 Matches 3.5– 54 MHz bands	AT-180	AH-710 Covers 1.9-30 MHz bands. 20 m; 98.4 ft	FL-430 GKHz 1st IF FILTER (For HF/ 50MHz band) FL-431 3kHz 1st IF FILTER (For HF/ 50MHz band)	FL-52A 500Hz/-6dB FL-53A 250Hz/-6dB FL-222 1.8kHz/-6dB FL-257 3.3kHz/-6dB
IC-7800	~								
IC-7700	~								
IC-7600			~	<ul> <li>✓</li> </ul>	~				
IC-7410			~	~	~			~	
IC-7200			~	~	~	~	~		
IC-7000			<ul> <li>✓</li> </ul>	~	<b>v</b>	<ul> <li>✓</li> </ul>			
IC-718		<ul> <li>✓</li> </ul>		~	<ul> <li>✓</li> </ul>	<ul> <li>✓</li> </ul>	<ul> <li>✓</li> </ul>		(Accepts only one filter)
IC-9100			<ul> <li>✓</li> </ul>	<ul> <li>✓</li> </ul>	~			~	

	HIGH STABILITY CRYSTAL UNIT	VOICE SYNTHESIZER	DSP UNIT	CI-V CONVERTER	LINEAR AMPLIFIER	CARRYING HANDLES	HANDLE	MOBILE MOUNT	TING BRACKETS
MODEL NAME	CR-338 Frequency sta- bility: ±0.5ppm	UT-102	UT-106	CT-17	IC-PW1	MB-23 MB-106 MB-117 MB-121 MB-123 Photo shows MB-117.	MB-116	MB-62	MB-118
IC-7800				~	~				
IC-7700				~	~				
IC-7600				<ul> <li>✓</li> </ul>	~	(Use MB-121)			
IC-7410				<ul> <li>✓</li> </ul>	(Use with OPC-599)	(Use MB-123)			
IC-7200				<ul> <li>✓</li> </ul>	(Use with OPC-599)	(Use MB-117)	<ul> <li>✓</li> </ul>		~
IC-7000				~	(Use with OPC-599)	(Use MB-106)		~	
IC-718	~	~	(Installed depending on version)	~	(Use with OPC-599)	(Use MB-23)			~
IC-9100				~	(Use with OPC-599)	(Use MB-123)			

Applicable
 Not applicable

## **OPTIONS FOR BASE STATION TRANSCEIVERS**

	MOUNTIN	MOUNTING BASES		SEPARATION CABLES	MIC ADAPTER CABLE	ADAPTER CABLE	ACC 13-PIN CABLE	DC POWER CABLES	1200MHz BAND UNIT
MODEL NAME	MB-120	MBF-1	мв-105А	<b>OPC-1443</b> 3.5m;11.5ft <b>OPC-1444</b> 5.0m;16.4ft	OPC-589 8-pin connector microphone to 8-pin modular	OPC-599 13-pin ACC socket to 7, 8-pin ACC sockets	OPC-742 Connection cable between transceiver and AT-180 with 2m/70cm linear amplifier	<b>OPC-025A</b> 20A cable <b>OPC-1457</b> 30A cable	UX-9100
IC-7800									
IC-7700									
IC-7600								(Use OPC-1457)	
IC-7410						~		(Use OPC-1457)	
IC-7200						~		(Use OPC-1457)	
IC-7000	(Use with MB-105A)	(Use with MB-105A)	~	<ul> <li>✓</li> </ul>	~	<ul> <li>✓</li> </ul>	<ul> <li>✓</li> </ul>	(Use OPC-1457)	
IC-718		,				<ul> <li>✓</li> </ul>		(Use OPC-025A)	
IC-9100						<ul> <li>✓</li> </ul>		(Use OPC-1457)	<b>v</b>

	CLONING SOFTWARE	IP REMOTE CONTROL SOFTWARE	<b>D-STAR UNIT</b>	DATA C	ABLES
MODEL NAME	<b>CS-9100</b> A USB cable (A-B type) is required for programming.	RS-BA1	UT-121	OPC-1529R DATA 1 Jack to RS-232C	OPC-2218LU DATA 1 Jack to USB
IC-7800		(Possible)			
IC-7700		(Possible)			
IC-7600		~			
IC-7410		~			
IC-7200		~			
IC-7000		(Possible with CT-17)			
IC-718		(			
IC-9100	~	<ul> <li>✓</li> </ul>	~	~	<ul> <li>✓</li> </ul>
			<b>~</b> :	Applicable	: Not applicable



Max. 30A output (25A continuous)
 9-15V variable output voltage

- 9–15V Variable Output Voltage
   Transformer type
   Voltage and current meters
   209(W)×120(H)×280(D) mm;
   8.23×4.72×11.02 in dimensions
   (Not available in some countries)

## OPTIONS FOR MOBILE TRANSCEIVERS

		HAND MICF	ROPHONES		MOUNTIN	G BASES	DC POWER CABLES	CONTROLLER	SEPARATION CABLES
MODEL NAME	нм-154	HM-154T w/DTMF keypad	HM-133/V w/DTMF keypad	HM-103	MB-120	MBF-1	OPC-347 7.0m: 23ft OPC-1132A 3.0m: 9.8ft	RC-24	OPC-1663 3.4m: 11.2ft OPC-1712 10cm: 3.9in
IC-2820H	~		(Use HM-133)		~	~	~		<b>v</b>
ID-880H	~		(Use HM-133)	~	~	~	~		
ID-1	~							~	
IC-2300H	~		(Use HM-133V)				~		
IC-V8000	V	<b>v</b>	(Use HM-133)				<b>v</b>		

	SPEAKER CABLE	MICROPHONE CABLES	MIC ADAPTER CABLE	DATA C	ABLES	CI	LONING CABL	ES	CLONING SOFTWARE
MODEL NAME	<b>OPC-441</b> 5.0m: 16.4ft	OPC-440A 5.0m: 16.4ft OPC-647 2.5m: 8.2ft	OPC-589 8-pin connector microphone to 8-pin modular	OPC-1529R For data com- munication and PC cloning	OPC-2218LU USB cable	OPC-474 Between trans- ceivers	OPC-478 Transceiver to PC RS-232C cable	OPC-478UC Transceiver to PC USB cable	CS-2300H CS-2820 CS-80/880*1 CS-V8000 Optional OPC-478, OPC-478UC, OPC-1529R or OPC-2218LU cable required for pro- gramming.
IC-2820H	~	~	~	~	~	~	~	~	(Use CS-2820)
ID-880H	~	~	~	~	~	~	~	~	(Use CS-80/880)
ID-1		~							
IC-2300H		<ul> <li>✓</li> </ul>	~			~	~	~	(Use CS-2300H)
IC-V8000	~	<b>v</b>	~			~	~		(Use CS-V8000)

\*1 CS-80/880 is available for free download from: http://www.icom.co.jp/world/support/index.html

	EXTERNAL	SPEAKERS	DTMF DECODER UNIT	DIGITAL UNIT
MODEL NAME	SP-10	SP-22	UT-108	UT-123 With GPS receiver
IC-2820H	~			<ul> <li>✓</li> </ul>
ID-880H	~			
ID-1	~	~		
IC-2300H	<ul> <li>✓</li> </ul>			
IC-V8000	<ul> <li>✓</li> </ul>		<ul> <li>✓</li> </ul>	
		v	: Applicable	: Not applicable



## **OPTIONS FOR HANDHELD TRANSCEIVERS**

		BATTER	Y CASES		BATTERY PACKS					
MODEL NAME	<b>BP-216</b> LR6(AA)×2 cells	<b>BP-257</b> LR6(AA)×2 cells	BP-263 LR6(AA)×6 cells	BP-273 LR6(AA)×3 cells	<b>BP-217</b> (Li-lon) 7.4V/1500mAh(min.) 1580mAh(typ.)	<b>BP-256</b> (Li-Ion) 7.4V/1620mAh(min.) 1700mAh(typ.)	<b>BP-264</b> (Ni-MH) 7.2V/1400mAh	<b>BP-265</b> (Li-Ion) 7.4V/1900mAh(min.) 2000mAh(typ.)	<b>BP-271</b> (Li-Ion) 7.4V/1150mAh(min.), 1200mAh(typ.)	
				944	••			in the second se		
ID-31A				V					~	
IC-92AD		~				~				
IC-80AD	V				~					
IC-T70A			~				~	~		
IC-V80			<ul> <li>✓</li> </ul>				<ul> <li>✓</li> </ul>	<ul> <li>✓</li> </ul>		

	BATTERY PACKS		DESKTOP CHARGERS						
MODEL NAME	<b>BP-272</b> (Li-Ion) 7.4V/1880mAh(min.), 2000mAh(typ.)	BC-139 Rapid charger Includes AC adapter	BC-177 Rapid charger Includes AC adapter	BC-191 Rapid charger (For BP-264)	BC-192 Regular charger (For BP-264)	<b>BC-193</b> Rapid charger (For BP-265)	BC-197 Rapid multi-charger	BC-202 Rapid charger	BC-123S*1 12V/1A
	2						FEFE		-82
ID-31A	V							(Use with BC-123S)	(Use with BC-202)
IC-92AD			~						
IC-80AD		~							
IC-T70A				(Use with BC-123S)	(Use with BC-147S/BC-206S)	(Use with BC-123S)	(Use with BC-157S)		(Use with BC-191 or BC-193)
IC-V80				(Use with BC-123S)	(Use with BC-147S/BC-206S)	~	(Use with BC-157S)		(Use with BC-191 or BC-193)

	AC ADA	AC ADAPTERS		CHARGER	ADAPTERS	CIGARE	TTE LIGHTER	CABLES	DC POWER CABLES
MODEL NAME	BC-1475*2 BC-2065 12V/200mA	<b>BC-1575</b> *3 12V/6.6A	BC-167S*4 12V/500mA	<b>AD-120</b> *6 For BP-264	<b>AD-121</b> *6 For BP-265	CP-12L with noise filter	<b>CP-19R</b> with DC-DC con- verter	CP-23L	OPC-254L/LR
	(Photo shows BC-1475)		80		l pp		"INT	22	S.S.
ID-31A			<ul> <li>✓</li> </ul>			<ul> <li>✓</li> </ul>	<ul> <li>✓</li> </ul>		<ul> <li>✓</li> </ul>
IC-92AD			<ul> <li>✓</li> </ul>			<ul> <li>✓</li> </ul>	~	(Use with BC-177)	<ul> <li>✓</li> </ul>
IC-80AD			<ul> <li>✓</li> </ul>			~	~	(Use with BC-139)	<ul> <li>✓</li> </ul>
IC-T70A	(Use with BC-192)	(Use with BC-197)	✔*5	(Use with BC-197)	(Use with BC-197)	✔*5	✓*5	(Use with BC-191 or BC-193)	✔*5
IC-V80	(Use with BC-192)	(Use with BC-197)		(Use with BC-197)	(Use with BC-197)			(Use with BC-191 or BC-193)	
		· ·	d SV for Australia ve		pe version available		<b>~</b> :	Applicable	: Not applicable

 \*2 BC-147SA for USA, and SV for Australia version available. BC-206SE for B
 \*3 BC-157S for USA, Europe, UK and Australia versions available.
 \*4 BC-167SA for USA, SD for Europe and SV for Australia version available. E for Europe version availab

\*5 For charging BP-264. BP-265 cannot be charged using the external DC power jack.
 \*6 Either AD-120 or AD-121 is supplied with the BC-197, depending on version.

## **OPTIONS FOR HANDHELD TRANSCEIVERS**

	DC POWE	R CABLES			SPEA	KER-MICROPH	IONES		
MODEL NAME	OPC-515L	OPC-656 12-20V DC CABLE	HM-75LS	нм-131	HM-158L	HM-159L	HM-174	HM-175GPS	HM-186LS
ID-31A			~						<b>v</b>
IC-92AD				(Use with OPC-1797)			V	<ul> <li>✓</li> </ul>	
IC-80AD				~					
IC-T70A	(Use with BC-191, BC-192 or BC-193)	(Use with BC-197)		~					
IC-V80	(Use with BC-191, BC-192 or BC-193)	(Use with BC-197)			~	~			

	SPEAKER-MICROPHONES		EARPHONE-MICROPHONES			HEADSETS			EARPHONES
MODEL NAME	HM-189GPS	HM-153/L	HM-153L5	HM-166	HM-166LS	HS-94 Earhook type with boom microphone	HS-95 Behind-the-head type	HS-97 Throat microphone type	SP-13
ID-31A		(Use HM-153 with OPC-2144)	~	(Use with OPC-2144)	~	(Use with OPC-2006LS)	(Use with OPC-2006LS)	(Use with OPC-2006LS)	(Use with OPC-2144)
IC-92AD		(Use HM-153 with OPC-1797)		(Use with OPC-1797)					(Use with OPC-1797)
IC-80AD	<ul> <li>✓</li> </ul>	(Use HM-153)		<ul> <li>✓</li> </ul>					<ul> <li>✓</li> </ul>
IC-T70A		(Use HM-153)				(Use with OPC-2006)	(Use with OPC-2006)	(Use with OPC-2006)	
IC-V80		(Use HM-153L)				(Use with OPC-2004)	(Use with OPC-2004)	(Use with OPC-2004)	

	EARPHONES		PLUG ADAPTER CABLES				BELT CLIPS		
MODEL NAME	SP-27	OPC-1797	OPC-2004	OPC-2006	OPC-2006LS	OPC-2144	MB-86 Swivel type	MB-111 Alligator type	MB-124 Alligator type
	-0							Po	
ID-31A					~	~			
IC-92AD		~						~	
IC-80AD	<ul> <li>✓</li> </ul>						~		
IC-T70A	<ul> <li>✓</li> </ul>			<ul> <li>✓</li> </ul>					<ul> <li>✓</li> </ul>
IC-V80	<ul> <li>✓</li> </ul>		<ul> <li>✓</li> </ul>						~
	✓ : Applicable : Not applicable								: Not applicable

## **OPTIONS FOR HANDHELD TRANSCEIVERS**

	BELT CLIPS	VEHICLE CHARGER BRACKET		CARRYING CASES				CLONING CABLES		
MODEL NAME	MB-127 Alligator type	МВ-130	LC-163	LC-168	LC-174	LC-178	OPC-474 Between transceivers	OPC-478 Transceiver to PC RS-232C cable	OPC-478UC Transceiver to PC USB cable	
ID-31A	<ul> <li>✓</li> </ul>					~				
IC-92AD				~			(Use with two OPC-1797s)			
IC-80AD			<ul> <li></li> </ul>				~	~	~	
IC-T70A		(Use with BC-191/192/193)			<b>v</b>		<ul> <li>✓</li> </ul>	~	~	
IC-V80		(Use with BC-191/192/193)					<ul> <li>✓</li> </ul>	<b>v</b>	<ul> <li>✓</li> </ul>	

		DATA CABLES	;	CLONING SOFTWARE	REMOTE CONTROL SOFTWARE	ANTENNA ADAPTER	ANTENNAS	CI-V LEVEL CONVERTER
MODEL NAME	OPC-1529R Transceiver to PC RS-232C cable	OPC-1799 Transceiver to PC RS-232C cable	OPC-2218LU USB type	CS-31 <sup>+1</sup> CS-80/880 <sup>+1</sup> CS-T70 CS-V80 Optional OPC-478, OPC-478UC, OPC-1529R or OPC-2218LU cable required for pro- gramming.	RS-92 OPC-1799 cable included	AD-92SMA BNC type antenna connector	FA-B2E FA-S270C	CT-17
ID-31A			~	(Use CS-31)		<ul> <li>✓</li> </ul>	(Use FA-S270C)	~
IC-92AD		<b>v</b>			~	~	(Use FA-S270C)	
IC-80AD	V		~	(Use CS-80/880)		~	(Use FA-S270C)	
IC-T70A				(Use CS-T70)		<ul> <li>✓</li> </ul>	(Use FA-S270C)	
IC-V80				(Use CS-V80)			(Use FA-B2E)	

CS-31 and CS-80/880 are available for free download from: http://www.icom.co.jp/world/support/index.html

Applicable : Not applicable

### SPECIFICATIONS FOR BASE STATION TRANSCEIVERS

		IC-7800	IC-7700	IC-7600	IC-7410	
	Frequency coverage (Differs according to version)	Tx: 1.8, 3.5, 5 <sup>*1</sup> , 7, 10, 14, 18, 21, 24, 28, 50MHz bands Rx: 30kHz–60MHz <sup>+2</sup> <sup>*1</sup> Depending on version. <sup>*2</sup> Some frequency ranges are not guaranteed.	Tx: 1.8, 3.5, 5 <sup>*1</sup> , 7, 10, 14, 18, 21, 24, 28, 50MHz bands Rx: 30kHz–60MHz <sup>+2</sup> <sup>*1</sup> Depending on version. <sup>*2</sup> Some frequency ranges are not guaranteed.	Tx: 1.8, 3.5, 5 <sup>*1</sup> , 7, 10, 14, 18, 21, 24, 28, 50MHz bands Rx: 30kHz–60MHz <sup>+2</sup> <sup>*1</sup> Depending on version. <sup>*2</sup> Some frequency ranges are not guaranteed.	Tx: 1.8, 3.5, 5 <sup>+1</sup> , 7, 10, 14, 18, 21, 24, 28, 50MHz bands Rx: 30KHz-60.000MHz <sup>+2</sup> <sup>+1</sup> Depending on version. <sup>+2</sup> Some frequency ranges are not guaranteed.	
	Modes	USB, LSB, CW, RTTY, PSK31, AM, FM	USB, LSB, CW, RTTY, PSK31, AM, FM	USB, LSB, CW, RTTY, PSK31, AM, FM	USB, LSB, CW, RTTY, AM, FM	
	Frequency stability	±0.05ppm (0°C to +50°C; +32°F to +122°F, after warm up)	±0.05ppm (0°C to +50°C; +32°F to +122°F, after warm up)	±0.05ppm (0°C to +50°C; +32°F to +122°F, after warm up)	Less than ±0.5ppm (0°C to +50°C; +32°F to +122°F)	
eral	Maximum current drain	800VA	800VA	23A at 13.8V DC	23A at 13.8V DC	
General	Power supply requirement	85–265V AC (Auto sensing)	85–265V AC (Auto sensing)	13.8V DC ±15%	13.8V DC ±15%	
	Antenna connector	SO-239 × 4 + BNC × 2 (50Ω)	SO-239 × 4 + BNC (50Ω)	SO-239 × 2 + phono [(RCA) 50Ω]	SO-239 × 2 (50Ω)	
	Number of memory channels	101 (99 regular, 2 scan edges)	101 (99 regular, 2 scan edges)	101 (99 regular, 2 scan edges)	101 (99 regular, 2 scan edges)	
	Dimensions (WxHxD; Projections are not included)	424×149×435 mm; 16.69×5.87×17.13 in	425×149×437 mm; 16.73×5.87×17.2 in	340×116×279.3 mm; 13.39×4.57×11 in	315×116×343 mm; 12.4×4.57×13.5 in	
	Weight (approx.)	25kg; 55lb	22.5kg; 49.6lb	10.0kg; 22lb	10.2kg; 22.4lb	
	Output power	SSB, CW, RTTY, PSK31, FM: 5-200W AM: 5-50W	SSB, CW, RTTY, PSK31, FM: 5–200W AM: 5–50W	SSB, CW, RTTY, PSK31, FM: 2–100W AM: 1–30W	SSB, CW, RTTY, FM: 2–100W AM: 2–27W	
mitter	Spurious emissions	Less than –60dB (HF) Less than –70dB (50MHz)	Less than –60dB (HF) Less than –70dB (50MHz)	Less than –50dB (HF) Less than –63dB (50MHz)	Less than –50dB (HF) Less than –63dB (50MHz)	
Transmitter	Carrier suppression	More than 63dB	More than 63dB	More than 40dB	More than 40dB	
	Unwanted sideband	More than 80dB	More than 80dB	More than 55dB	More than 55dB	
	Microphone connector	8-pin connector (600Ω)	8-pin connector (600Ω)	8-pin connector (600Ω)	8-pin connector (600Ω)	
	Sensitivity (typical) Preamp ON SSB, CW, RTTY, AM: at 10dB S/N FM, WFM: at 2dB SINAD DV: at 1% BER	SSB, CW, RTTY, PSK31 (2.4kHz):           0.1-1.799MHz         0.5µV           1.8-29.999MHz         0.16µV           50-54MHz         0.13µV           AM (6kHz) :         0.1-1.799MHz         6.3µV           1.8-29.999MHz         2.0µV         50-54MHz         1.0µV           FM (15kHz) :         1.0µV         FM (15kHz) :         28-29.999MHz         0.5µV           50-54MHz         0.32µV         0.5µV         0.5µV         0.5µV	SSB, CW, RTTY, PSK31 (2.4kHz):           0.1-1.799MHz         0.5μV           1.8-29.999MHz         0.16μV           50-54MHz         0.13μV           AM (6kHz) :         0.1-1.799MHz         6.3μV           1.8-29.999MHz         2.0μV         50-54MHz         1.0μV           FM (15kHz) :         1.0μV         50-54MHz         1.0μV           FM (15kHz) :         28-29.999MHz         0.5μV         50-54MHz           50-54MHz         0.32μV         50-54MHz         0.32μV	SSB, CW, RTTY (2.4kHz):           1.8–29.995MHz         0.15μV           50–54MHz         0.12μV           AM (6kHz):         0.5–17.99MHz         6.3μV           1.8–29.995Hz         2.0μV           50–54MHz         1.6μV           FM (15kHz):         28–29.7MHz         0.5μV           50–54MHz         0.3μV	SSB, CW, :           1.8-29.999MHz         0.16μV           50-54MHz         0.13μV           AM: 0.5-1.8MHz         12.6μV           1.8-29.999MHz         2.0μV           50-54MHz         1.6μV           FM: 28-29.7MHz         0.5μV           50-54MHz         0.32μV	
Receiver	Selectivity	SSB:         2.4kHz/-3dB           (2.4kHz)         3.6kHz/-60dB           CW:         500Hz/-3dB           (500Hz)         700Hz/-60dB           RTTY, PSK31:         360Hz/-6dB           (350Hz)         650Hz/-6dB           AM:         6.0kHz/-3dB           (6kHz)         15kHz/-60dB           FM:         12kHz/-6dB           (15kHz)         20kHz/-60dB           * Variable between 50Hz and 3.6kHz.	SSB, RTTY: 2.4kHz/-3dB (2.4kHz) 3.6kHz/-60dB CW: 500Hz/-3dB (500Hz) 700Hz/-60dB AM: 6.0kHz/-3dB (6kHz) 15kHz/-60dB FM: 12kHz/-6dB (15kHz) 20kHz/-60dB * Variable between 50Hz and 3.6kHz.	SSB:         2.4kHz/-6dB           (2.4kHz)         3.8kHz/-60dB           CW:         500Hz/-6dB           (500Hz)         900Hz/-6dB           RTTY:         350Hz/-6dB           (350Hz)         650Hz/-6dB           (350Hz)         650Hz/-6dB           (6kHz)         15kHz/-6dB           (6kHz)         15kHz/-6dB           FM:         12kHz/-6dB           (15kHz)         20kHz/-60dB           * Variable between 50Hz and 3.6kHz.	SSB:         2.4kHz/-6dB           (2.4kHz)         3.4kHz/-40dB           CW:         500Hz/-6dB           (500Hz)         700Hz/-6dB           RTTY:         500Hz/-6dB           (350Hz)         800Hz/-40dB           AM:         6.0kHz/-6dB           (6kHz)         10kHz/-40dB           FM:         12kHz/-6dB           (15kHz)         22kHz/-40dB	
	Spurious and image rejection	More than 70dB	More than 70dB	More than 70dB* (* Except IF point on 50MHz band)	More than 70dB	
	AF power (at 10% distortion with an $8\Omega$ load)	More than 2.6W	More than 2.6W	More than 2.0W	More than 2.0W	
	External speaker connector	2-conductor 3.5 (d) mm (1/3'')/8Ω×2 (for main and sub bands)	2-conductor 3.5 (d) mm (1/6″)/8Ω	2-conductor 3.5 (d) mm (1/8″)/8Ω	2-conductor 3.5 (d) mm (1/8″)/8Ω	

The LCD display may have cosmetic imperfections that appear as small or dark spots. This is not a malfunction or defect, but a normal characteristic of LCD displays. All stated specifications are subject to change without notice or obligation.

## SPECIFICATIONS FOR BASE STATION TRANSCEIVERS

		IC-7200	IC-7000	IC-718	IC-9100
	Frequency coverage (Differs according to version)	Tx: 1.8, 3.5, 5 <sup>*1</sup> , 7, 10, 14, 18, 21, 24, 28, 50MHz bands Rx: 30kHz–60.000MHz <sup>+2</sup> <sup>*1</sup> Depending on version. <sup>*2</sup> Some frequency ranges are not guaranteed.	Tx: 1.8, 3.5, 5 <sup>*1</sup> , 7, 10, 14, 18, 21, 24, 28, 50, 144, 430(440)MHz bands Rx: 30kHz–199,999, 400–470MHz <sup>*2</sup> <sup>*1</sup> Depending on version. * <sup>2</sup> Some frequency ranges are not guaranteed.	Tx: 1.8, 3.5, 7, 10, 14, 18, 21, 24, 28MHz bands Rx: 30kHz–29.999MHz*1 * <sup>1</sup> Guaranteed range 0.5–29.999MHz.	Tx: 1.8, 3.5, 5 <sup>+1</sup> , 7, 10, 14, 18, 21, 24, 28, 50, 144, 430 (440), 1200 <sup>-3</sup> MHz bands Rx: 30kHz–60MHz <sup>+2</sup> , 136MHz–174MHz <sup>+2</sup> , 420MHz–480MHz <sup>+2</sup> , 1240MHz–1320MHz <sup>+3</sup> <sup>*1</sup> Depending on version. <sup>*2</sup> Some frequency ranges are not guaranteed. <sup>*3</sup> With actional LV 0015
	Modes	USB, LSB, CW, RTTY, AM	USB, LSB, CW, RTTY, AM, FM, WFM* (*Rx only)	USB, LSB, CW, RTTY, AM	*3 With optional UX-9100. USB, LSB, CW, RTTY (FSK), AM*,FM, DV (with UT-121) * Transmit HF/50MHz only. Cannot receive on 1200MHz band.
	Frequency stability	±0.5ppm	±0.5ppm	Less than ±200Hz	±0.5ppm
_	Maximum current drain	(-10°C to +60°C; +14°F to +140°F) 22A at 13.8V DC	(0°C to +50°C; +32°F to +122°F) 22A at 13.8V DC	(From 1 min. to 60 min. after power ON) 20A at 13.8V DC	(0°C to +50°C; +32°F to +122°F, after warm up) 24A at 13.8V DC
General	Power supply requirement	13.8V DC ±15%	13.8V DC ±15%	13.8V DC ±15%	13.8V DC ±15%
G	Antenna connector	SO-239 (50Ω)	$SO\text{-}239\times2$ (for HF/50MHz and 144/430(440)MHz bands: 50 $\Omega)$	SO-239 (50Ω)	HF/50MHz         SO-239 (50Ω)× 2           144MHz         SO-239 (50Ω)           430/440MHz         Type-N (50Ω)           1200MHz         Type-N (50Ω) (With UX-9100)
	Number of memory channels	201 (199 regular, 2 scan edges)	503 (495 regular, 6 scan edges and 2 call)	101 (99 regular, 2 scan edges)	396* (99 for each HF/50, 144, 430/440, 1200MHz band) 4 Call* (1 for each band) 24 Scan edges* (6 for each band) 20 satellite * With optional UX-9100.
	Dimensions (W×H×D; Projections are not included)	241×84×291 mm; 9.49×3.31×11.06 in	167×58×180 mm; 6.57×2.28×7.09 in	240×95×239 mm; 9.45×3.74×9.41 in	315×116×343 mm; 12.4×4.57×13.5 in
	Weight (approx.)	5.5kg; 12.1lb	2.3kg; 5.1lb	3.8kg; 8.4lb	IC-9100: 11kg; 24.3lb
tter	Output power	SSB, CW, RTTY: 2–100W AM: 1–25W	SSB, CW, RTTY, FM: 1.8–50MHz 2–100W 144MHz 2–50W 430(440)MHz 2–35W AM: 1.8–50MHz 1–40W 144MHz 2–20W 430(440)MHz 2–14W	SSB, CW, RTTY: 2–100W AM: 2–35W	UX-9100: 950g; 2.1lb SSB, CW, RTTY, FM, DV*1: HF/50MHz 2-100W 144MHz 2-75W 1200MHz*2 1-10W AM: HF/50MHz 2-30W * <sup>1</sup> With UT-121.* <sup>2</sup> With UX-9100.
Transmitter	Spurious emissions	Less than –50dB (HF) Less than –63dB (50MHz)	Less than –50dB (HF) Less than –60dB (other bands)	Less than -50dB	1.8–29.7MHz         Less than –50dB           50,144MHz         Less than –63dB           430/440MHz         Less than –61.8dB           1200MHz         Less than –53dB (With UX-9100)
	Carrier suppression	More than 50dB	More than 50dB	More than 40dB	More than 40dB
	Unwanted sideband	More than 50dB	More than 50dB	More than 50dB	More than 55dB
	Microphone connector	8-pin connector (600Ω)	8-pin modular (600Ω)	8-pin connector (600Ω)	8-pin connector (600Ω)
	Sensitivity (typical) Preamp ON SSB, CW, RTTY, AM: at 10dB S/N FM, WFM: at 12dB SINAD DV: at 1% BER	SSB, CW : 1.8–29.999MHz 0.16μV 50–54MHz 0.13μV AM: 0.5–1.8MHz 13μV 1.8–29.995MHz 2.0μV 50–54MHz 1.0μV	SSB, CW: 1.8–29.999MHz 0.15µV 50–54MHz 0.12µV 144/430(440)MHz 0.11µV AM: 0.5–1.8MHz 13µV 1.8–29.999MHz 2.0µV 50–54MHz 1.0µV 144/430(440)MHz 1.0µV FM: 28–29.7MHz 0.5µV 50–54MHz 0.25µV 144/430(440)MHz 0.18µV WFM: 76–108MHz 10µV	SSB, CW, RTTY: 1.8–29.999MHz 0.16μV AM: 0.5–1.799MHz 13μV 1.8–29.999MHz 2.0μV	SSB, CW : 1.8–29.9999MHz 0.16µV 50–54MHz 0.13µV 144/440MHz 0.11µV 1200MHz 0.11µV <sup>+1</sup> AM: 0.5–1.8MHz 12.6µV 1.8–29.999MHz 2.0µV 50–54MHz 1.6µV 144/440MHz 1.4µV FM: 28–29.7MHz 0.5µV 50–54MHz 0.32µV 144/440MHz 0.18µV <sup>+1</sup> DV <sup>+2</sup> : 28–29.7MHz 1.0µV 50–54MHz 0.35µV 144/440MHz 0.35µV 144/440MHz 0.35µV <sup>+1</sup> *' With UX-9100.*2 With UT-121.
Receiver	Selectivity	SSB:         2.4kHz/-6dB           (2.4kHz)         3.6kHz/-60dB           CW:         500Hz/-6dB           (500Hz)         900Hz/-60dB           RTTY:         360Hz/-6dB           (350Hz)         650Hz/-60dB           AM:         6.0KHz/-6dB           (6kHz)         15.0kHz/-60dB           * Variable between 50Hz and 3.6kHz.	SSB:         2.4kHz/-6dB           (2.4kHz)         3.6kHz/-60dB           CW:         500Hz/-6dB           (500Hz)         900Hz/-60dB           RTTY:         360Hz/-6dB           (350Hz)         650Hz/-60dB           AM:         6.0kHz/-6dB           (6kHz)         15kHz/-60dB           FM:         12kHz/-6dB           (15kHz)         20kHz/-60dB	SSB, CW, RTTY: 2.1kHz/-6dB 4.5kHz/-60dB AM: 6.0kHz/-6dB 20kHz/-40dB	SSB:         2.4kHz/-6dB           (2.4kHz)         3.4kHz/-40dB           CW:         500Hz/-6dB           (500Hz)         700Hz/-40dB           RTTY:         500Hz/-6dB           (500Hz)         800Hz/-6dB           (500Hz)         800Hz/-40dB           AM:         6.0kHz/-6dB           (6kHz)         10.0kHz/-40dB           FM:         12kHz/-6dB           (15kHz)         22kHz/-40dB           DV (With UT-121): -500B (12.5kHz spacing)           1200MHz (With UX-9100)           SSB_CW         2.3kHz/-6dB           FM         15.0kHz/-6dB
	Spurious and image rejection (except IF)	More than 70dB* (* Except ½ IF point on 50MHz band)	More than 70dB (HF) More than 65dB (other bands; except ½ IF point on 50MHz, IF point 144MHz band)	More than 70dB (1.8-29.999MHz)	HF/50MHz More than 70dB* 144,430/440MHz More than 60dB 1200MHz More than 50dB (With UX-9100) (* Except IF point on 50MHz band)
	AF power (at 10% distortion with an 8Ω load)	More than 2.0W	More than 2.0W	More than 2.0W	More than 2.0W
	External speaker connector	2-conductor 3.5 (d) mm (1//)/8Ω	2-conductor 3.5 (d) mm (1/s")/8Ω	2-conductor 3.5 (d) mm (1/s')/8Ω	2-conductor 3.5 (d) mm (¹/s")/8Ω×2 (for main and sub bands)

All stated specifications are subject to change without notice or obligation.

### SPECIFICATIONS FOR MOBILE TRANSCEIVERS

	IC-2820H	ID-880H	ID-1	IC-2300H	IC-V8000
Frequency coverage (Differs according to version)	$\begin{array}{llllllllllllllllllllllllllllllllllll$	U.S.A. version : Tx 144–148, 430–450MHz Rx 118–173.995, 230–549.995, 810–999.990MHz*2*4 EXP version : Tx 136–173.995, 400–469.995MHz*3 Rx 118–173.995, 230–549.995, 810–999.990MHz*3	1240–1300MHz	U.S.A. version: Tx 144–148MHz Rx 136–174MHz <sup>+5</sup> EXP version: Tx/Rx 136–174MHz <sup>+5</sup>	U.S.A. version: Tx 144–148MHz Rx 136–174MHz* <sup>5</sup> CSA version: Tx/Rx 136–174MHz* <sup>5</sup>
Max.current drain	13A	VHF 11.5A UHF 12.5A	7A	11A	15A
Dimensions (WiddwD; Proj. not included)	Main unit: 150×40×187.7 mm; 5.91×1.57×7.39 in Controller: 150×58×31.5 mm; 5.91×2.28×1.24 in	Main + Controller: 150×40×199.2 mm; 5.91×1.57×7.84 in Controller: 122×40×29.7 mm; 4.8×1.57×1.17 in	Main unit: 141×40×165.8 mm; 5.55×1.57×6.53 in Controller: 150×50×49.5 mm; 5.91×1.97×1.95 in	140×40×162 mm; 5.51×1.57×6.38 in	150×50×150 mm; 5.91×1.97×5.91 in
Weight (approx.)	Main unit: 1.5kg; 3.3lb Controller: 210g; 7.4oz (With OPC-1712)	1.3kg; 2.9lb (without microphone, cable and bracket)	Main unit: 1.2kg; 2.6lb Controller: 220g; 7.7oz	1.1kg; 2.43lb	1.09kg; 2.4lb
Output power (at 13.8 V DC; Differs according to version)	High: 50W Mid: 15W (approx.) Low: 5W (approx.)	High: 50W Mid: 15W (approx.) Low: 5W (approx.)	High: 10W Low: 1W (approx.)	High: 65W Mid-Hi: 25W (approx.) Mid-Lo: 10W (approx.) Low: 5W (approx.)	High: 75W Mid-Hi: 25W (approx.) Mid-Lo: 10W (approx.) Low: 5W (approx.)
Sensitivity (FM: at 1208 SINAD DV, DD: at 1% BER Guaranteed range)	DV Less than 0.35μV (with UT-123) FM Less than 0.18μV (144,430(440) MHz bands)	DV Less than 0.35μV FM Less than 0.18μV (144, 430(440) MHz bands)	DV Less than 0.35μV DD Less than 1.58μV FM Less than 0.18μV	Less than 0.18µV	0.15μV typ.
Audio output power (at 13.8V DC, 10%diatorition)	More than 2.4W (8Ω load)	More than 2.0W (8Ω load)	More than 2.0W (8Ω load)	4.5W typ. (4Ω load)	More than 2.0W (8Ω load)

\*1 Guaranteed range 144–148 and 440–450MHz. \*2 Cellular blocked. \*3 Guaranteed range 144–148 and 430–440MHz.
\*4 Guaranteed range 144–148 and 430–450MHz. \*5 Guaranteed range 144–148MHz.

(L) means left side receiver, (R) means right side receiver.

All stated specifications are subject to change without notice or obligation.

### SPECIFICATIONS FOR HANDHELD TRANSCEIVERS

	ID-31A	IC-92AD	IC-80AD	IC-T70A	IC-V80
Frequency coverage (Differs according to version)	U.S.A. version: Tx 420–450MHz*1 Rx 400–479MHz*1 EXP version: Tx/Rx 400–479MHz*2 EXP-01 version: Tx 430–440MHz Rx 400–479MHz*2	U.S.A. version: Tx (A/B)144–148, 420–450MHz*3 Rx (A) 0.495–999.990MHz*3*4 (B) 118–174, 350–470MHz*3 EXP version: Tx (A/B)137–174, 400–470MHz*5 Rx (A) 0.495–999.990MHz*5 (B) 118–174, 350–470MHz*5	U.S.A. version: Tx 144–148, 420–450MHz* <sup>3</sup> Rx 0.495–999.990MHz* <sup>3*4</sup> EXP version: Tx 137–174, 400–470MHz* <sup>5</sup> Rx 0.495–999.990MHz* <sup>5</sup>	U.S.A. version: Tx 144–148, 420–450MHz* <sup>3</sup> Rx 136–174, 400–479MHz* <sup>3</sup> EXP version: Tx/Rx 136–174, 400–479MHz* <sup>5</sup>	U.S.A. version: Tx 144–148MHz Rx 136–174MHz* <sup>6</sup> EXP version: Tx/Rx 136–174MHz* <sup>6</sup>
Dimensions (W×H×D; Proj. not included)	58×95×25.4 mm; 2.28×3.74×1 in	59×112×34.2 mm; 2.32×4.41×1.35 in	58.4×103×34.2 mm; 2.3×4.06×1.35 in	58×111×30 mm; 2.28×4.37×1.18 in	58×112×30 mm; 2.28×4.41×1.18 in
Weight (approx.)	225g; 7.94oz with antenna and BP-271	325g; 11.5oz with antenna and BP-256	290g; 10.3oz with antenna and BP-217	380g; 13.4oz with antenna and BP-264	360g; 12.7oz with antenna and BP-264
Output power (typical values)	5W, 2.5W, 0.5W, 0.1W at 7.4V DC	5W, 2.5W, 0.5W, 0.1W at 7.4V DC	5W, 2.5W, 0.5W, 0.1W at 74V DC	5W, 2.5W, 0.5W at 72V DC	5W, 2.5W, 0.5W at 7.2V DC
Sensitivity (FM: at 12dB SINAD DV: at BER 1% Guaranteed range)	DV Less than 0.28μV FM Less than 0.18μV	DV 0.22μV FM 0.14μV/0.16μV typ. (144/440 MHz bands)	DV 0.22μV typ. FM 0.14μV/0.16μV typ. (144/440 MHz bands)	0.18µV typ. (144/440 MHz bands)	0.14µV typ.
Audio output power (at 7.4V DC, 10%distortion)	More than 400mW (Internal SP, 16 $\Omega$ load) More than 200mW (External SP, 8 $\Omega$ load)	More than 200mW (8Ω load)	More than 300mW (8Ω load)	More than 700mW (Internal SP, 16 $\Omega$ load) More than 400mW (External SP, 8 $\Omega$ load)	750mW typ. (Internal SP, 16Ω load) 450mW typ. (External SP, 8Ω load)

\*1 Guaranteed range 440-450MHz. \*2 Guaranteed range 430-440MHz. \*3 Guaranteed range 144-148 and 440-450MHz. \*4 Cellular blocked. \*5 Guaranteed range 144-148 and 430-440MHz. \*6 Guaranteed range 144–148MHz. (A) means VFO A receiver, (B) means VFO B receiver.

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#### Applicable U.S. Military Specifications

Icom makes rugged products that have been tested to and passed the MIL-STD requirements and strict environmental standards for shock (MIL-810C, D, E and F) and vibration (MIL-810C, D, E and F).

#### New Rules Released for the 60 Meter (5 MHz) Band (For U.S. users only)

On November 18, 2011, the FCC released a Report and Order (R&O), defining new rules for the 60 meter (5 MHz) band. In the R&O, the FCC replaced one of the channels in the band, increased the maximum authorized power amateur stations may transmit in this band and authorized amateur stations to transmit three emission designators in the five channels in the 5330.6-5406.4 kHz band (60 meters).

Additional information on these changes can be found at:

www.icomamerica.com/en/amateur/amateurtools/new-rules-60-meter-band.aspx

or

www.arrl.org/news/fcc-releases-new-rules-for-60-meters

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