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アマチュア無線機器

HF + 50 MHz (SSB / CW / RTTY / PSK 31/63 / AM / FM) 100 W transceiver

IC-7610 2アマ免許

Suggested retail price ¥ 368,000 + tax

Technical standard conformity certificate (construction design certification) Acquired model

Digital machine (D-STAR®)

Fixed machine

Onboard machine

Portable device

Receiving machine

option



IC-7610M <50 W type>
3アマ免許

Suggested retail price ¥ 368,000 +
Application for certification of compliance
with tax technical standards

ダウンロード

 取扱説明書  カタログ

 写真を拡大

Achieves even better RMDR characteristics and dual watch.

RF direct sampling to the next stage.

- Excellent RMDR: 110 dB realized.
- Dual watch function that can receive simultaneously in different bands and different modes.
- The DIGI-SEL unit that eliminates powerful unnecessary radio waves is mounted on the main and sub of the receiving section.
- Equipped with high-speed real-time spectrum scope and waterfall display function.
- By adopting 7 inch full color touch panel, outstanding operability and visibility are realized.

■ Evolved RF direct sampling method

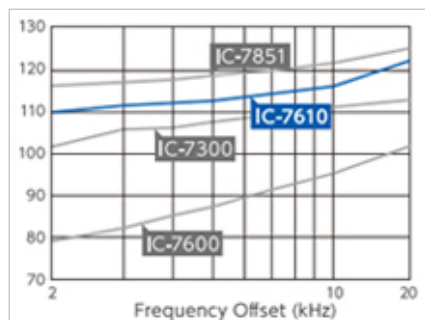
RF direct sampling system converts RF signal directly to digital signal and performs signal processing by FPGA (Field Programmable Gate Array). As a result, there is no nonlinear distortion like that occurred in the mixer during the processing of analog signals. In addition, we carefully select the devices based on RF direct sampling which was first adopted by the IC - 7300 to optimize the program.



FPGA block

■ **RMDR realizes amazement 110 dB * (typical value)**

RMDR (Reciprocal Mixing Dynamic Range) is an index showing how much reception sensitivity deteriorates due to blocking from a strong signal in proximity. By adopting the RF direct sampling method, the IC-7610 achieves astonishment RMDR 110 dB. This is close to RMDR 116 dB of the highest peak model IC - 7851. When you operate in contests and crowded bands, you can make the target signal emerge even in the environment of super close proximity reception.



RMDR characteristics (@ 14.2 MHz)

※ At 2 kHz detuning

■ **Custom order master clock oscillator**

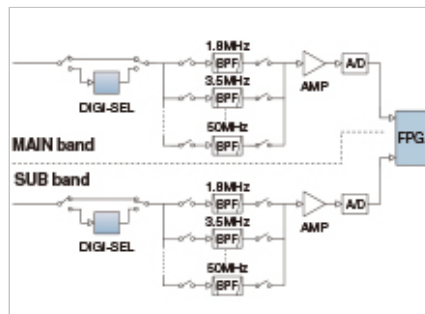
In order to achieve excellent RMDR, a clock with high purity is essential. The master clock of the IC-7610 uses a custom order VCXO (Voltage Controlled X'tal Oscillator) pursuing particularly excellent phase noise characteristics. In addition, circuit design is carried out inheriting the know-how cultivated in the design of the flagship machine IC-7851, and devices with low noise characteristics are also carefully selected for power supply circuits that generate clocks.



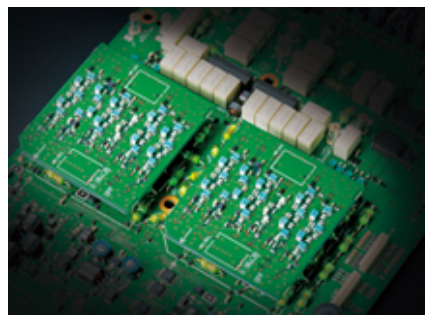
VCXO

■ **Independent receiver. True dual watch with different band / mode**

The receiver has two separate identical receiving circuits with MAIN / SUB. Since one receiver does not affect the other receiver, simultaneous reception of two waves in different bands / modes is achieved completely with the same performance. Of course, the spectrum scope also operates dual, so you can instantaneously grasp both the MAIN / SUB band constantly changing band conditions.



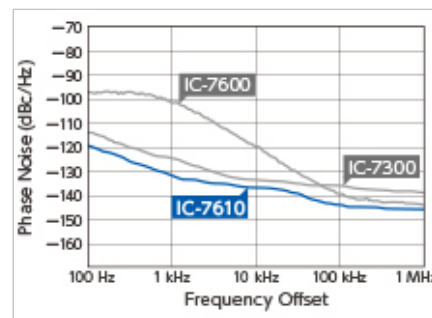
Reception block diagram



Independent BPF unit

■ Excellent transmission phase noise characteristics

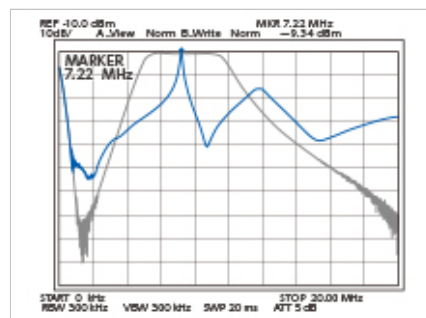
In the conventional heterodyne system, noise and distortion occur when mixing the LO and the carrier with the mixer to generate the transmission wave, but this unit generates the transmission wave directly from the DAC (Digital Analog Converter) by the DUC (Digital Up Conversion) system. Since it outputs and generates a transmission wave, it realizes excellent transmission phase noise characteristics as shown on the right, and it is possible to launch a transmission wave with extremely high purity.



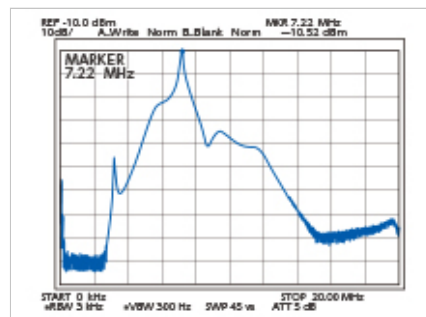
Phase noise characteristics of transmission output

■ DIGI-SEL installed in MAIN / SUB

The DIGI-SEL circuit is carried in the reception part of MAIN / SUB. DIGI-SEL is a high-frequency filter with sharp peak characteristics within the passband. By combining a band pass filter with a large amount of out-of-band attenuation and DIGI-SEL, in addition to preventing overflow of the ADC, the third order distortion component is eliminated. Especially great effect on the filtering of powerful transmitted radio waves from middle wave and short wave broadcasting stations adjoining above and below the ham band.



BPF at 7.22 MHz reception and DIGI-SEL passband characteristic



Overall pass characteristic from antenna to BPF to DIGI-SEL output

■ Built-in auto antenna tuner that supports smooth multi band operation

Built-in antenna tuner in the main body. Once tuning is taken, the next time you call up the matching information automatically by simply selecting that frequency, band change and multi band operation are also smooth. Moreover, even when there is no antenna which can be synchronized such as emergency, emergency communication tuner mode * which enables transmission is carried.



Antenna tuner unit

※ There are restrictions such as transmission output.

■ **New design, with speaker housing dedicated to IC-7610**

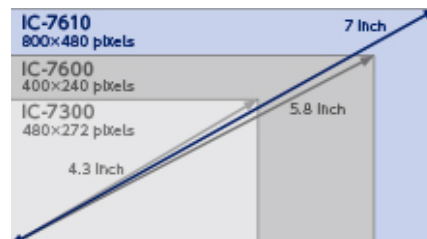
Adopted a custom-made sealed speaker housing to faithfully reproduce the received signal with excellent purrness. It achieves a sharp sound quality from bass to treble. Also, instead of mounting the speaker directly to the chassis, it is mounted via an insulator (vibration proof material), and the resonance sound of the chassis is eliminated. It can be operated comfortably even for a long time rugby or contest.



Speaker housing

■ **Touch operation compatible large LCD with pursuit of ideal visibility and operability**

The IC-7610 is equipped with a 7-inch (800 × 480 pixel) wide type color liquid crystal display that supports touch operation. On the display, the information necessary for operation such as operation frequency of each function including MAIN / SUB operation frequency, each function setting / operation situation, spectrum spectrum, S meter, RTTY / PSK 31 · 63 decode message is concentratedly displayed.



LCD panel comparison

■ **Dual spectrum scope enabling advanced operation**

With cooperative processing of FPGA and CPU software, we realize overwhelming sweep speed and resolution, wide dynamic range of 100 dB. In addition, since you can monitor two different bands at the same time, you will be able to grasp the condition and exert a tremendous power at the contest. Dual scopes can be displayed

	IC-7610	IC-7300	IC-7600
スパン幅(kHz)	5~1000		5~500
分解能(ドット)	最小約1°		最小約20°
スイープ速度	約30画面/秒		約4画面/秒
表示レンジ	100dB	80dB	70dB
画面表示	Dual	Single	
マウス操作	可能	不可	可能

※ When receiving single carrier, display dot number of 60 dB bandwidth

side by side or side by side depending on the situation and needs. In addition, since waterfall display allows you to check the amplitude of the frequency spectrum in time series, weak signals that are difficult to distinguish with spectroscopy alone can be seen, so increase the possibility of communication without missing weak DX station signals I will.

■ **Equipped with audio scope function**

FFT scope of transmission / reception sound, oscilloscope display is possible. You can visually check the modulation characteristics of the transmission wave of the remote station, the microphone compressor effect of your station, and the filter width and notch characteristics by spectrum display of the received sound. In addition, the oscilloscope can also



see the keying waveform of CW. In addition, MAIN / SUB can be instantly switched when receiving.

Example of audio scope display

■ Intuitive operation realizes smooth operation

Combined with touch operation, equipped with multi dial that makes it easy to set various settings. When you press the dial, a menu will appear next to the dial. Touch the menu to select the item, and turn the dial to adjust the level. Access to various functions such as RF power, microphone gain, DIGI – SEL, notch etc can be performed much more quickly.



RC-28

■ Remote encoder that assists comfortable operation RC-28

You can operate the tuning of the SUB band of the IC – 7610 conveniently by hand by USB connection of optional RC – 28. By switching the MAIN / SUB setting according to the main unit assignment to the F – 1, F – 2 button, it can operate as both MAIN / SUB main dial. As well as dual watch, it is possible to respond quickly to DX Pediton stations in split operation.



■ External output terminal with excellent extensibility

Output to the external display is possible with a digital method (DVI – D terminal) that does not degrade the signal. By using the external display you can operate on a larger screen. In addition, since the meter voltage output terminal is provided on the rear panel, it is also possible to connect an external analog meter.

■ SD card slot for convenient voice recording / setting change

SD card slot is equipped as an interface for data storage. Recording of communication contents including transmitted sound, log of RTTY / PSK decoding, captured images of display etc can be saved on the SD card. Also, voice for voice transmission and message memories for CW / RTTY / PSK 31/63 can be saved. Furthermore, since the settings of the radio can be saved, each operator can operate it with your favorite setting just by replacing the SD card even if the operator replaces. Also, you can upgrade firmware and save settings with USB memory.

■ Equipped with I / Q output

Equipped with I / Q output terminal for digital output of IF signal. It is possible to utilize such as controlling / analyzing the output signal with PC * .

※ It is scheduled to be installed in a firmware up at a later date. Separate software etc. are required.

■ Remote operation to increase operational flexibility

You can remotely operate the IC – 7610 with a PC that has installed RS – BA 1 (sold separately). Connected to the LAN / Internet, or operated from living apart from the Shack, you can also achieve style, such as operating the IC–7610, which was installed in the prospect of a good hill Shack from home ※ . In addition, since the server function is installed in the IC – 7610, it can be set and connected simply. It also supports the display of spectrum scope and waterfall (single band).

※ Procedures under the Radio Law are necessary.

■ Other function group

Antenna system

- BNC type RX IN / OUT terminal that can connect receive-only antenna and external BPF

CW type

- CW keying waveform shaping by FPGA
- Multifunction Electronic Keyer
- 300 to 900 Hz CW Receive Pitch Continuously Variable Function
- Auto repeat function
- Serial contest number automatic count up function
- Contest number omission encoding function
- Double key jack
- Full Break Inn
- CW autotuning
- APF function that can adjust Position, Width and AF Level

Reception system

- 30 kHz to 60 MHz General coverage reception function
(Outside the reception performance is not guaranteed for some frequency bands outside the amateur band)
- Preamplifier 1 emphasizing intermodulation characteristics and preamplifier 2 emphasizing amplification gain
- Attenuator (variable from 3 dB to 45 dB in 3 dB steps)
- IP + function
- Tracking function
- Twin peak audio filter for RTTY
- RTTY / PSK demodulator & decoder
- AGC time constant (FM is fixed) that can set Fast / Mid / Slow in each mode

Transmission system

- TX monitor
- All mode power control
- VOX
- Emergency communication setting frequency (4630 kHz) compatible
- Equipped with BNC type transverter connector
- Equipped with 121 kinds of microphone equalizer
- Transmission bandwidth setting function
- 50 waves tone encoder standard equipment

Operating system

- 5 ch or 10 ch memo pad

- Quick split function
- Quick dual watch function
- Control RF GAIN & Squelch with one knob
- RIT and Δ TX that can be varied up to ± 9.999 kHz
- Two clock display (JST and UTC etc.) and a timer function are installed
- 1 Hz pitch tuning and 1 Hz indication
- Dial lock function · Panel lock function
- 4 stages of main dial torque variable
- Two external speaker jacks
- Screen saver function
-
- Simultaneously check the multifunction meter (S meter, power, ALC, COMP, SWR, ID, VD, TEMP)
- Automatic TS function to automatically adjust the tuning speed
- AH-4 control circuit

■ Main accessories

- DC power cable
- Hand microphone <HM-219> others

■ Back Panel



- | | |
|--------------------------|-------------------------|
| ① [DC13.8V] (直流電源) コネクター | ⑪ [SEND] ジャック |
| ② [TUNER] コネクター | ⑫ [EXT-SP A] ジャック |
| ③ [REMOTE] ジャック | ⑬ [EXT-SP B] ジャック |
| ④ [METER] ジャック | ⑭ [USB 1] ポート |
| ⑤ [GND] 端子 | ⑮ [USB 2] (I/Q OUT) ポート |
| ⑥ [EXT KEYPAD] ジャック | ⑯ [EXT-DISPLAY] コネクター |
| ⑦ [KEY] (電鍵) ジャック | ⑰ [LAN] ポート |
| ⑧ [ACC 1] (アクセサリ 1) ソケット | ⑱ [X-VERTER] コネクター |
| ⑧ [ACC 2] (アクセサリ 2) ソケット | ⑲ [REF IN] コネクター |
| ⑨ [ANT 1] (アンテナ 1) コネクター | ⑲ [RX-ANT IN] コネクター |
| ⑨ [ANT 2] (アンテナ 2) コネクター | ⑲ [RX-ANT OUT] コネクター |
| ⑩ [ALC] ジャック | |

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