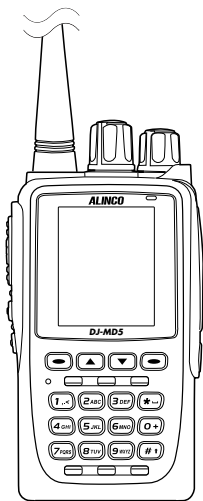


ALINCO

VHF/UHF DUAL BAND
DIGITAL TRANSCEIVER

DJ-MD5

User Manual



DMR

Thank you for purchasing your new Alinco transceiver. Please read this manual carefully before using the product to ensure full performance, and keep this manual for future reference as it contains information on after-sales service.

In case addendum or errata sheets are included with this product, please read those materials and keep them together with this instruction manual for future reference.

ALINCO, INC.

Notice

■ Introduction

Please be informed that this manual has been edited with consumer-use in mind. The product is delivered to consumers with a default factory setting status or after being programmed by dealers if your dealers have been programmed it. Some features are programmable using editor-software (PC software) only and they are not mentioned in this manual.

Please read this manual completely from the first page to the last, to learn basic functions the product offers. It is important to note that some of the operations may be explained in relation to information in other chapters. By reading just one part of the manual, you may risk not understanding the complete explanation of the function.

■ Utility software and instructions

The utility software and detailed instructions in PDF format are available at distributors' websites. Please consult with your dealer for details. A personal computer and an interface cable ERW-21 is required for programming.

■ Lightning

Any person is not safe outdoor during thunderstorm and lightning. This condition is getting worse if somebody keeps a hand-held radio; chances of being hit by lightning are doubled since lightning may hit a radio antenna as well. At this time, there is no hand-held radio having any kind of protection against lightning current (which is higher than 10 kA.). Note also that no car provides adequate protection of its passengers or drivers against lightning as well. Therefore, Alinco will not take responsibility for any danger associated with using its hand-held radios outdoor or inside the car during lightning.

■ Covering ranges (without using repeaters)

You may expect a range of approx. 4km/2.5 miles or more at high-power when located on a flat, noise-free place like on a beach. However, it may vary depending on how to wear and carry the radios, surrounding locations/conditions and static noise levels, etc. In urban areas with many buildings or inside a building, such covering range may become drastically short.

■ About ingress protections

We don't guarantee any IP grade of this product. Avoid contacts with dust and liquid, and wipe off immediately when wet or dusty.

■ Integrated GPS Receiver

An internal GPS receiver is installed in TGP(FCC) and EGP(CE) models.

■ When using the GPS receiver

- A GPS receiver is installed under the top panel. When the GPS receiver is activated, do not cover the top part with anything that will block satellite signals.
- GPS signals can't pass through metal objects. When driving or navigating, you may risk not receiving GPS signals if covered by metal roof. External antenna can't be connected, so we recommend to operate near a window or on a deck.
- GPS signals can't reach to the receiver in places like:
 - Tunnels or a shadow of tall buildings.
 - Underground floors and parking lots
 - Under a wide bridge
 - In remote forested areasAlso in severe weather conditions, clouds, rain, snow etc may obstacles signals also.
- The Global Positioning System is operated by the U.S. Department of Defense. The Department is responsible for accuracy and maintenance of the system. Any changes by the Department may affect the accuracy and function of the GPS system.

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All other trademarks are the properties of their respective holders.

ALINCO and authorized dealers are not responsible for any typographical errors there may be in this manual. The contents of this manual may be updated without any notice or obligation. Alinco cannot be liable for pictorial or typographical inaccuracies. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

■ Compliance Information Statement

FCC WARNING

This equipment generates or uses radio frequency energy. Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved in the instruction manual. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

INFORMATION TO THE DIGITAL DEVICE USER REQUIRED BY THE FCC

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can generate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer for technical assistance.

FOR CUSTOMERS IN CANADA : MODEL: 3070C-DJMD5

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence.

L'EXPLOITATION EST AUTORISÉE AUX DEUX CONDITIONS SUIVANTES :

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.



Hereby, ALINCO, INC. declares that the radio equipment type DJ-MD5 is in compliance with Directive 2014/53/EU.

The full text of the EU declaration of conformity is available at the following internet address: <http://www.alinco.com/Ce/>

■ RADIO FREQUENCY ENERGY SAFETY INFORMATION

This **Alinco** transceiver has been tested and complies with the standards listed below, in regards to Radio Frequency (RF) energy and electromagnetic energy (EME) generated by the transceiver.

- FCC RF exposure limits for *Occupational Use Only*. RF Exposure limits adopted by the FCC are generally based on recommendations from the National Council on Radiation Protection and Measurements, and the American National Standards Institute.
- FCC OET Bulletin 65 Edition 97-01 Supplement C
- American National Standards Institute (C95.1 - 1992)
- American National Standards Institute (C95.3 - 1992)



WARNING

This Alinco transceiver generates RF EME while transmitting. RF EME (Radio Frequency Electric and Magnetic Energy) has the potential to cause slight thermal, or heating effects to any part of your body less than the recommended distance from this radio transmitter's antenna. RF energy exposure is determined primarily by the distance to and the power of the transmitting device. In general, RF exposure is minimized when the lowest possible power is used or transmission time is kept to the minimum required for consistent communications, and the greatest distance possible from the antenna to the body is maintained. The transceiver has been designed for and is classified for Occupational Use Only. Occupational/ controlled exposure limits are applicable to situations in which persons are exposed to RF energy as a consequence of their employment, and such persons have been made aware of the potential for exposure and can exercise control over their exposure. This means you can use the transceiver only if you are aware of the potential hazards of operating a transceiver and are familiar in ways to minimize these hazards. This transceiver is not intended for use by the general public in uncontrolled environments. Uncontrolled environment exposure limits are applicable to situations in which the general public may be exposed to RF energy, or in which the persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Notice

The following list provides you with the information required to ensure that you are aware of RF exposure and of how to operate this transceiver so that the FCC RF exposure limitations are not exceeded.

- While transmitting (holding the PTT key or speaking with VOX enabled), always keep the antenna and the radio at least 3 cm (1.18 inches) from your body or face, as well as from any bystanders. A LED on the top of the radio shows red when the transmitter is operating in both PTT and VOX modes.
- Do not transmit for more than 50% of the total transceiver use time; transmitting over 50% of the total use time may exceed the limits in accordance to the FCC RF exposure requirements. Nominal transceiver operation is 5% transmission time, 5% reception time, and 90% stand-by time.
- Use only the specified antenna for this transceiver; this may be either the antenna provided with the transceiver or another antenna authorized by Alinco.

Use only Alinco authorized accessories (antennas, battery packs, belt clips, Speaker/ Mics or headsets etc.): When worn on the body, always place the radio in a Alinco recommended clip or carrying case meant for this product. The use of other than recommended or approved body- worn accessories may result in RF exposure levels which exceed the FCC's occupational/ controlled environment RF exposure limits.



CAUTION

To ensure that your exposure to RF EME is within the FCC limits for occupational use, you must observe and adhere to the above points.







■ Electromagnetic Interference Compatibility

Electronic devices are susceptible to electromagnetic interference (EMI) if they are not adequately shielded or designed for electromagnetic compatibility. Because this transceiver generates RF energy, it can cause interference to such equipment.

- Turn OFF your transceiver where signs are posted to do so. Hospitals and health care facilities use equipment that is sensitive to electromagnetic radiation.
- Turn OFF your transceiver while on board an aircraft when so instructed. Use of the transceiver must be in accordance with airline regulations and/or crew instructions.


WARNING


To prevent any hazard during operation of Alinco's radio product, in this manual and on the product you may find symbols shown below. Please read and understand the meanings of these symbols before starting to use the product.


| | |
|---|---|
|  Danger | This symbol is intended to alert the user to an immediate danger that may cause loss of life and property if the user disregards the warning. |
|  Alert | This symbol is intended to alert the user to a possible hazard that may cause loss of life and property if the user disregards the warning. |
|  Caution | This symbol is intended to alert the user a possible hazard that may cause loss of property or injure the user if the warning is disregarded. |
|  | Alert symbol. An explanation is given. |
|  | Warning symbol. An explanation is given. |
|  | Instruction symbol. An explanation is given. |

Alert

■ Environment and condition of use

 Use of this product may be prohibited or illegal outside of your country. Be informed in advance when you travel.

 It is recommended that you check local traffic regulations regarding the use of a radio equipment while driving. Some countries prohibit or apply restrictions for the operation of radios and mobile-phones while driving.

 Do not use this product in close proximity to other electronic devices, especially medical ones. It may cause interference to those devices.

WARNING



Keep the radio out of the reach of children.



In case a liquid leaks from the product, do not touch it. It may damage your skin. Rinse with plenty of cold water if the liquid contacted your skin.



Never operate this product in facilities where radio products are prohibited for use such as aboard aircraft, in airports, in ports, within or near the operating area of business wireless stations or their relay stations.



The manufacturer declines any responsibilities against loss of life and/or a property due to a failure of this product when used to perform important tasks like life-guarding, surveillance, and rescue.



Do not use multiple radios in very close proximity. It may cause interference and/or damage to the product(s).



Risk of explosion if battery is replaced with an incorrect type. Dispose of, or recycle used batteries according to your local regulations.



The manufacturer declines any responsibilities against loss of life and property due to a failure of this product when used with or as a part of a device made by third parties.



Use of third party accessory may result in damage to this product. It will void our warranty for repair.

■ Handling this product




Be sure to reduce the audio output level to minimum before using an earphone or a headset. Excessive audio may damage hearing.








Do not open the unit without permission or instruction from the manufacturer. Unauthorized modification or repair may result in electric shock, fire and/or malfunction and voids warranty.



Do not operate this product in a wet place such as in a shower room. It may result in electric shock, fire and/or malfunction.

-  Do not place the product in a container carrying conductive materials, such as water or metal in close proximity. A short-circuit to the product may result in electric shock, fire and/or malfunction.


■ About chargers

-  Do not use adaptor other than having the specified voltage. It may result in electric shock, fire and/or malfunction, Never turn on the radio while charging.
-  Do not plug multiple devices using an adaptor into a single wall outlet. It may result in overheating and/or fire.
-  Do not handle adaptor with a wet hand. It may result in electric shock.
-  Securely plug the adaptor into the wall outlet. Insecure installation may result in short-circuit, electronic shock and/or fire.
-  Do not use the adaptor if the plug or socket contacts are dirty. Overheating and/or short-circuiting may result in fire, electric shock and/or damage to the product.

■ In case of emergency

In case of the following situation(s), please turn off the product, switch off the source of power, then remove or unplug the power-cord. Please contact your local dealer of this product for service and assistance. Do not use the product until the trouble is resolved. Do not try to troubleshoot the problem by yourself.

- **When a strange sound, smoke and/or strange odor comes out of the product.**
- **When the product is dropped or the case is broken or cracked.**
- **When a liquid penetrated inside.**
- **When a power cord (including DC cables, AC cables and adaptors) is damaged**

-  For your safety, turn off then remove all related AC lines to the product and its accessories from the wall outlet if a thunderstorm is likely.

■ Maintenance



Do not disassemble the unit and its accessories. Please consult with your local dealer of this product for service and assistance.



Caution

■ Environment and condition of use



Do not use the product in proximity to a TV or a radio. It may cause interference or receive interference.



Do not place in a humid, dusty or insufficiently ventilated place. It may result in electric shock, fire and/or malfunction.



Do not place in an unstable or vibrating position. It may result in electric shock, fire and/or malfunction when/if the product falls to the ground.



Do not place the product in proximity to a source of heat and humidity such as a heater or a stove. Avoid placing the unit in direct sunlight.



Be cautious of a dew formation. Please completely dry the product before use when it happens.



Electronic devices such as solar panels and LED light bulbs may generate high levels of RF noise that may cause an interference. This is not a defect of receiver circuits of our product.

■ About transceiver



Be cautious of the whip antenna when carried in your shirt-pocket etc. It may make contact with your eye and cause injury.



Do not connect devices other than specified ones to the jacks and ports on the product. It may result in damage to the devices.



Turn off and remove the power source (AC cable, DC cable, battery, cigar cable, charger adaptor etc.) from the product when the product is not in use for extended period of time or in case of maintenance.



Never pull the cord alone when you unplug AC cable from the wall outlet.



Use a clean, dry cloth to wipe off dirt and condensation from the surface of the product. Never use thinner or benzene for cleaning.



Check with your local waste officials for details on recycling or proper disposal of the electronics product, battery-packs and accessories in your area.



RoHS

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1

Accessories

1.1 Standard Accessories

- EBP-88 : Li-ion Battery Pack (DC 7.4V 1700mAh)
- EDC-189A : Li-ion Battery Charger
- EDC-191T/E : AC Adaptor (depending on the version of purchase)
- EA-228 : Antenna
- EBC-34 : Belt Clip
- ERW-21 : PC interface cable
- Hand strap
- User manual

NOTE:

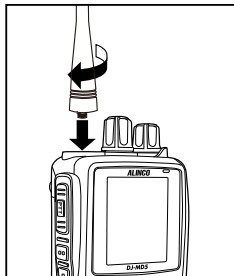
Accessories may differ depending on the version you have purchased. Please contact your local dealer for details of standard accessories and the warranty-policy.

1.2 Installations

1.2.1 Antenna

■ Attaching the Antenna

1. Hold the antenna by its base.
2. Align the grooves at the base of the antenna with the protrusions on the antenna connector.
3. Slide the antenna down and turn it clockwise until it stops.
4. Confirm that the antenna is securely connected. Check the connection from time to time.



■ Removing the Antenna

Turn the antenna counter-clockwise to disconnect the antenna.

NOTE:

Do not use third-party antenna as it may radiate more RF that exceeds SAR limit guidances.

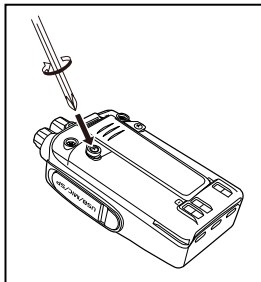
1.2.2 Belt Clip

■ Attaching the Belt Clip

1. Put the belt clip on the back of the unit, and turn the screw clockwise until it stops.
 2. Confirm that the belt clip is securely attached.
- * Tighten up the screw occasionally.

■ Removing the Belt Clip

Turn the screw counter-clockwise to remove the belt clip.



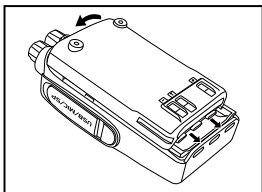
Caution: Use the screws of specified size only. Others may cause damage to the product. (screws size M 2.5mm x 3mm)

1.2.3 Battery Pack

■ Attaching the Battery Pack

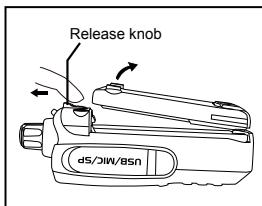
Match the projections of the battery to the bottom of the unit as shown with arrows below.

Push the upper part of the battery until it clicks to securely hold the battery.



■ Removing the Battery Pack

Pull the release knob toward upper side of the unit to loose the battery pack.

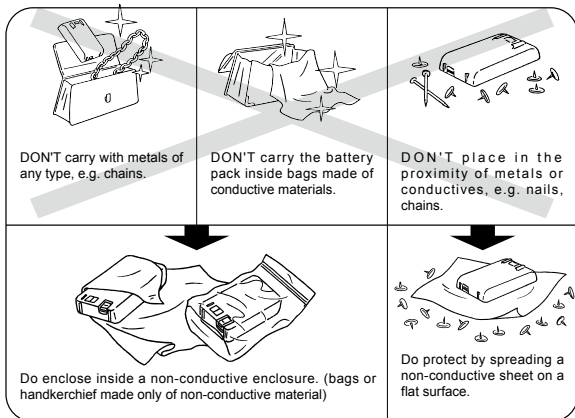


NOTE:

Be sure to remove the battery pack from the transceiver when not in use. Leaving it attached will discharge the battery faster resulting an over-discharge that cause deterioration of the battery pack.

1.2.4 Prevent Short Circuiting the Battery Pack

Be extra cautious when carrying the rechargeable battery pack; short circuiting will produce surge current possibly resulting in fire.



Caution

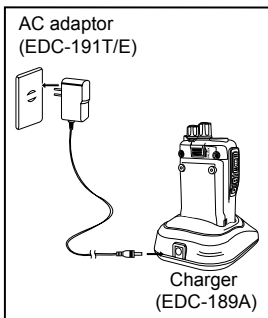
- The battery pack isn't fully charged when shipped. It must be charged before use.
- Charging should be conducted in a temperature range of 0°C to +40°C (+32°F to +104°F).
- Don't modify, dismantle, incinerate or immerse the battery pack in the water as this can be dangerous.
- Never short-circuit the battery pack terminals, as this can cause damage to the equipment or lead to heating of the battery which may cause burns.
- Unnecessary prolonged charging (overcharging) can deteriorate battery performance.
- The battery pack should be stored in a dry place where temperature is in -10°C to +40°C (14°F to 104°F) range. Temperatures outside this range can cause the battery liquid to leak. Exposure to prolonged high humidity can cause corrosion of metal components.
- Battery-packs are a consuming part. When its operating time becomes considerably short after a normal charge, please consider that the pack is exhausted and replace it with a new one.
- The battery pack is recyclable. Check with your local waste officials for details on recycling options or proper disposal in your area.

1.2.5 Using the Charger

1. Connect the AC adaptor plug to the DC-IN jack on the back of the charger.

*The design of the AC adaptor may vary depending on the models.

2. Connect the adaptor to an outlet.



3. Turn off the unit. The battery pack can't be charged correctly when the unit is turned on. Insert the unit to the charger as shown above.

The red indicator on the desktop charger turns on while charging.

When charging is completed, the green indicator turns on.

It takes up to 3.5 hours to fully charge the battery.

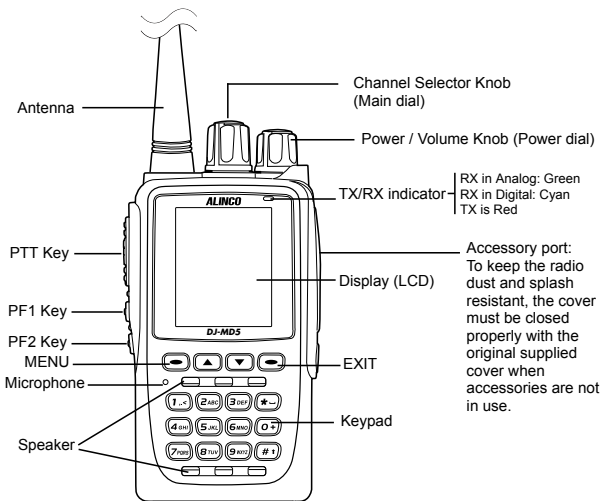
NOTE:

You can't operate the unit with using a provided charger.
The charger is to charge the battery pack only.

2

Names and Operations of Parts

■Front



| Name | Function |
|----------|--|
| PTT key | Press to transmit, release to receive. |
| MENU key | Press to enter function menu set up. Press to select/confirm a selection. |
| EXIT key | Press to return to previous menus. Press to delete characters when texting message. |
| ▲/▼ key | Press to select desired menus/parameters. |
| PF1 key | Press to activate pre-programmed functions. |
| PF2 key | |

3

Basic Operation

3.1 Turning On the Power

Turn Power dial clockwise to power on.

Turn it counter-clockwise to power off.

NOTE:

- Please be patient, it takes about 8 seconds until it turns on.

3.2 Adjusting the Audio Output (Volume)

Turn Power dial clockwise to increase the audio level,
counter-clockwise to decrease.

Never use earphone while adjusting audio level for your safety.

3.3 Selecting the Operating Channel

Turn Main dial clockwise to increase the channel number,
counter-clockwise to decrease.

3.5 Receiving

When a signal is received on the channel that you selected, S-meter is displayed on the LCD, then the received signal can be heard.

The indicator lights green while radio is receiving in analog channel or lights cyan if it is receiving in digital channel.

3.6 Transmitting

1. Press the PTT key. The red TX indicator turns on while transmitting.
2. While holding down the PTT key, speak into the unit at normal voice from the distance of 5cm (2").
3. Release the PTT key to receive.

 **NOTE:**

- Speaking too loud, too close or too far from the unit may distort the audio.
- Do not close the microphone hole on the front panel with your finger. Be cautious specially when wearing gloves.

3.7 Keylock

Press and hold the **★** key to lock the keypad.

Press [Menu] key then **★** key to unlock.

4

Options

EME-56A Earphone Microphone

EMS-76 Speaker Microphone

Spares:

EA-228 Antenna

EBC-34 Belt Clip

EBP-87 Li-ion Battery Pack (DC 7.4V 1500mAh)

EBP-88 Li-ion Battery Pack (DC 7.4V 1700mAh)

EDC-189A Li-ion Battery Charger

EDC-191E AC Adaptor (220V)

EDC-191T AC Adaptor (120V)

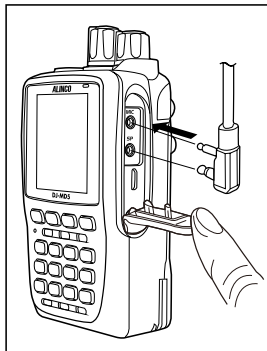
ERW-21 PC interface cable

4.1 Accessory port

Open the jack cover and insert the accessory plug into the jack as shown. When the accessory is not used, please be sure to close the cover securely.

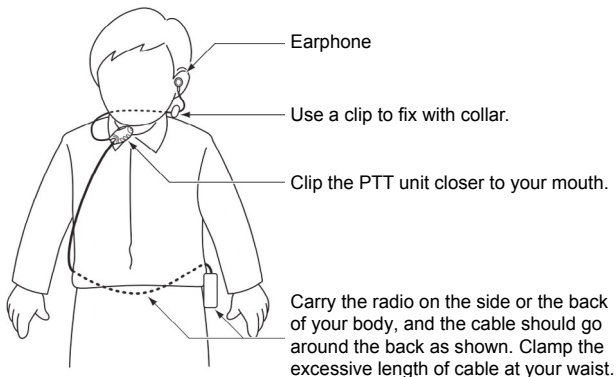
NOTE:

1. To keep the radio dust and splash resistant, the cover must be closed properly with the supplied cover.
2. The radio is not dust and splash resistant while using the optional accessory risking that the water may penetrate inside through the plug.



4.2 Earphone Microphone

Recommended installation of Earphone Microphone



5

Specifications

■GENERAL

| | |
|---|--|
| Frequency Range | 136-174MHz / 400-480MHz / 76-108MHz (FM radio RX only) |
| Number of Channels | 4000ch |
| Zones per Radio | 250 zone (MAX 250ch/zone) |
| Channel Spacing | Analog: 12.5/25kHz |
| | Digital: 12.5kHz |
| Operating Voltage | 7.4V DC nominal |
| Operating Temperature Range | -20°C to +55°C (-4 °F to +131 °F) |
| Frequency Stability | ±2.5ppm |
| Antenna Impedance | 50Ω |
| Dimensions (W x H x D Approx.) with EBP-88 Li-ion pack | 59x118x40 mm (2.32x4.65x1.57 inches) |
| Weight (Approx.) with EBP-88 Li-ion pack | 256g /9.03 ounces |
| Recording time | 14 hours |

■TRANSMITTER

| | |
|-------------------------|---------------------------------|
| RF Power Output | 5W / 2.5W / 1W / 0.2W |
| Spurious Emission | Less than 1GHz: -36dBm |
| | More than 1GHz: -30dBm |
| FM Hum & Noise (Analog) | 25kHz: 40dB |
| | 12.5kHz: 36dB |
| Modulation | 16K0F3E/11K0F3E/7K60FXD/7K60FXE |

■RECEIVER

| | |
|---------------------------------|----------------------------|
| Sensitivity (Analog/12dB SINAD) | 25kHz: 0.25uV |
| | 12.5kHz: 0.35uV |
| Sensitivity (Digital/BER) | 5%: 0.3uV |
| | 1%: 0.7uV |
| FM Hum & Noise (Analog) | 25kHz:45dB 12.5kHz:40dB |
| Audio Distortion | Less than 5% |
| Audio Output | 1000mW /16Ω |

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