# NAD® C 445

## FM/AM/DAB Tuner

Owner's Manual

# Introduction

**ENGLISH**

**WARNING**

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.

**CAUTION**

TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

## IMPORTANT SAFETY INSTRUCTIONS

### WARNING

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

THE LIGHTNING FLASH WITH ARROWHEAD SYMBOL, WITHIN AN EQUILATERAL TRIANGLE, IS INTENDED TO ALERT THE USER TO THE PRESENCE OF UNINSULATED "DANGEROUS VOLTAGE" WITHIN THE PRODUCT'S ENCLOSURE THAT MAY BE OF SUFFICIENT MAGNITUDE TO CONSTITUTE A RISK OF ELECTRIC SHOCK TO PERSONS.

THE EXCLAMATION POINT WITHIN AN EQUILATERAL TRIANGLE IS INTENDED TO ALERT THE USER TO THE PRESENCE OF IMPORTANT OPERATING AND MAINTENANCE (SERVICING) INSTRUCTIONS IN THE LITERATURE ACCOMPANYING THE APPLIANCE

**CAUTION**
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION : TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The equipment draws its nominal non-operational power from the AC outlet with its POWER switch in the STANDBY position. The socket-outlet shall be installed near the apparatus and shall be easily accessible.

### CAUTION

Changes or modifications to this equipment not expressly approved by NAD Electronics for compliance could void the user's authority to operate this equipment.

### CAUTION REGARDING PLACEMENT

To maintain proper ventilation, be sure to leave a space around the unit (from the largest outer dimensions including projections) equal to, or greater than, shown below.
Left and Right Panels: 10 cm
Rear Panel: 10 cm
Top Panel: 50 cm

### IMPORTANT INFORMATION FOR UK CUSTOMERS

DO NOT cut off the mains plug from this equipment. If the plug fitted is not suitable for the power points in your home or the cable is too short to reach a power point, then obtain an appropriate safety approved extension lead or consult your dealer. If, nonetheless, the mains plug is cut off, REMOVE THE FUSE and dispose of the PLUG immediately, to avoid possible shock hazard by inadvertent connection to the mains supply. If this product is not provided with a mains plug, or one has to be fitted, then follow the instructions given below:

### IMPORTANT

DO NOT make any connection to the larger terminal which is marked with the letter 'E' or by the safety earth symbol or coloured GREEN or GREEN AND YELLOW.
The wires in the mains lead on this product are coloured in accordance with the following code:
BLUE - NEUTRAL
BROWN - LIVE

As these colours may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The BLUE wire must be connected to the terminal marked with the letter 'N' or coloured BLACK.
The BROWN wire must be connected to the terminal marked with the letter 'L' or coloured RED

**When replacing the fuse, only a correctly rated and approved type should be used, and be sure to re-fit the fuse cover.**
**IF IN DOUBT CONSULT A COMPETENT ELECTRICIAN**

### NOTES ON ENVIRONMENTAL PROTECTION

At the end of its useful life, this product must not be disposed of with regular household waste but must be returned to a collection point for the recycling of electrical and electronic equipment. The symbol on the product, user's manual and packaging, point this out.
The materials can be reused in accordance with their markings. Through re-use, recycling of raw materials, or other forms of recycling of old products, you are making an important contribution to the protection of our environment.
Your local administrative office can advise you of the responsible waste disposal point.

## Introduction

Do not place this unit on an unstable cart, stand or tripod, bracket or table. The unit may fall, causing serious injury to a child or adult and serious damage to the unit. Use only with a cart, stand, tripod, bracket or table recommended by the manufacturer or sold with the unit. Any mounting of the device on a wall or ceiling should follow the manufacturer's instructions and should use a mounting accessory recommended by the manufacturer.

An appliance and cart combination should be moved with care. Quick stops, excessive force and uneven surfaces may cause the appliance and cart combination to overturn.

**WARNING: CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.**

**NOTE**

*The C445 is not an auto voltage DAB Tuner. Connect only to the prescribed AC outlet, i.e., 230V 50Hz.*

The model and serial number of your new DAB Tuner are located on the back of the cabinet. For your future convenience, we suggest that you record these numbers here:

**RECORD YOUR MODEL NUMBER (NOW, WHILE YOU CAN SEE IT)**

> **MODEL NO.: _____**
>
> **SERIAL NO.:_____**

The model and serial number of your new C445 are located on the back of the C445 cabinet.  For your future convenience, we suggest that you record these numbers here:

ENGLISH

**THANK YOU FOR CHOOSING NAD**

Congratulations! With the purchase of the C445 Tuner you are about to begin many years of listening enjoyment.
While sophisticated systems are hard at work within the C445 Tuner to make all of this happen, hook-up and operation are simple.
To obtain maximum enjoyment from your new C445 Tuner, we urge you to take a few minutes to read through this manual. This will ensure that connections are made properly. In addition, a few minutes spent learning the functions of the various controls will enable you to take advantage of all the power the C445 Tuner is able to deliver.

If you have any questions about this product, its installation or operation, please contact your dealer. He is your best local source of information.

One more thing: We urge you to register your C445 ownership on the NAD Worldwide Web site:

**http://www.nadelectronics.com/warranty/index.htm**
For warranty information contact your local distributor.

**DESCRIPTION AND FEATURES**

The C445 Tuner is equipped with DAB (Digital Audio Broadcast) and RDS (Radio Data System), bringing a wide range of information to radio listeners. Until now, analogue radio signals such as FM or AM have been subject to numerous kinds of interference on their way from the transmitter to your radio. These problems were caused by mountains, high-rise buildings and weather conditions.

With DAB, you can now receive CD-like quality radio programs without any annoying interference and signal distortion.

Now in use in many countries, RDS is a system for transmitting station identification, a description of the station's program type, indication of national, regional or local programs and the correct time. RDS also allows you to search for favourite programme types. A DOT-matrix display brings all this information to you with high visibility. As more FM stations become equipped with RDS capabilities, the C445 will serve as an easy-to-use centre for both information and entertainment.

# Introduction

## FRONT PANEL CONTROLS
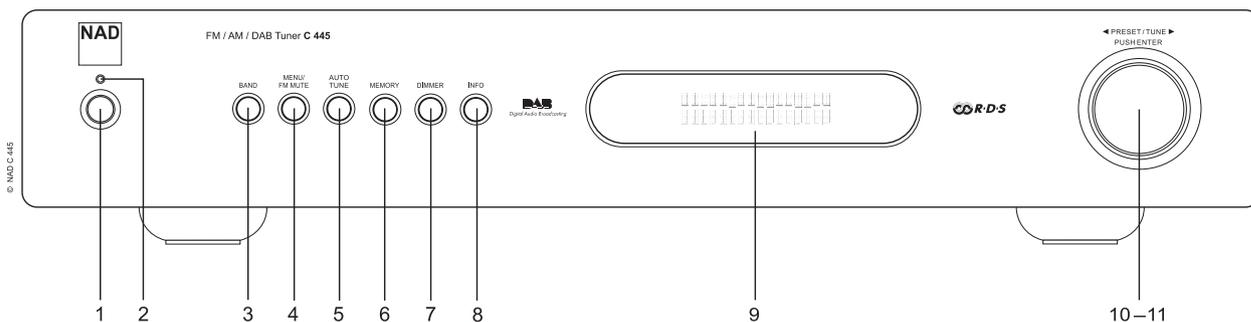
1 **System Power Control**: Press this button to turn on the C445 Tuner; press it again to turn the unit standby. Note that the Power Indicator next to the switch will turn green when the unit is on.

2 **Power Indicator**: This LED will illuminate in amber when the unit is in the Standby mode to signal that the unit is ready to be turned on. When the unit is in operation, the indicator will be green.

3 **Band Selector**: Press this button to change between the DAB, FM and AM frequency bands.

4 **Menu/FM Mute Selector**: In DAB mode, pressing this button will activate Dynamic Range Control, preset tune, manual tune features or station order. In FM mode, press this button to select the stereo or mono mode for FM tuning. In the stereo mode, the word STEREO will be shown in the Information Display, and stereo reception will be provided when stations are transmitting stereo signals. In the mono mode, the left and right signals from stereo broadcasts will be mixed together and reproduced through all channels. Select MONO for better reception of weak signals.

5 **Auto tune Button**: In DAB mode, press this button to automatically scan all available local stations. To scan for all available stations, keep the button pressed for three seconds, until AUTO SCAN FULL is shown in the Information Display.

6 **Memory Button**: Press this button to open the memory position that stores a preset location in the tuner. 99 DAB presets can be stored, as well as 30 FM and 30 AM presets. (See page 12 for more information on tuner presets.)

7 **Dimmer Button**: Press this button to dim the front panel display. The first press of the button will dim the displays to one-half normal brightness; the next press will turn back to normal brightness. The display will return to normal brightness the next time the unit is turned on.

8 **Info Button**: In DAB mode, pressing this button will change the content of the lower display line of the Information Display such as time and date, channel number, signal error rate, and software version. In RDS mode, it will change between the different RDS options.

9 **Information Display**: This dual line display delivers messages and status indications to help you operate the tuner.

10 **Control Ring**: Turn counter-clockwise to tune lower frequency stations and clockwise to tune higher frequency stations. When a station with a strong signal is tuned, the Information Display will read TUNED. Turn again to tune to the next frequency increment in Manual tune Mode, or automatically to the next station with a signal strong enough for acceptable reception in Auto tune Mode. The ring also controls the parameters in the different menus.

11 **ENTER**: In FM or AM mode, press this button to select Auto tune, Manual tune or Preset tune. In DAB mode, press this button to select the displayed station.

**ENGLISH**
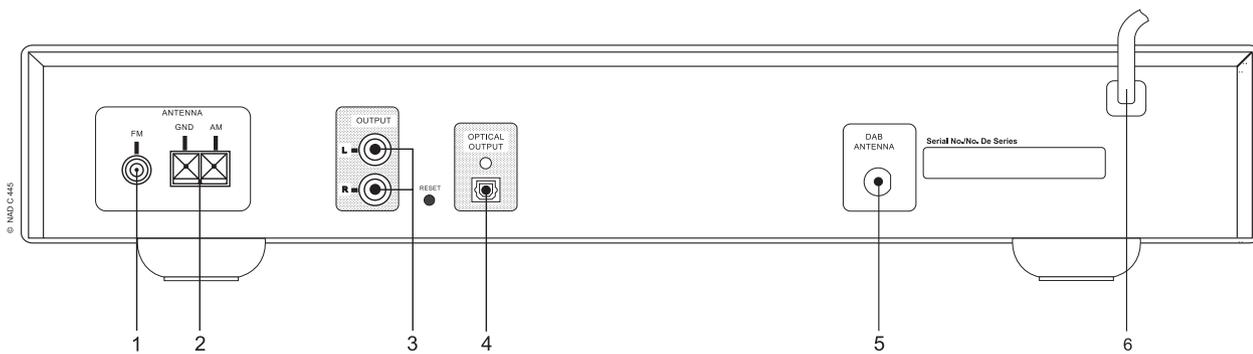
**1** **FM Antenna**: Connect an indoor or external FM antenna to this terminal.

**2** **AM Antenna**: Connect the AM loop antenna supplied with the C445 Tuner to these terminals. If an external AM antenna is used, make connections to the AM and GND terminals in accordance with the instructions supplied with the antenna.

**3** **Analogue Audio Outputs**: Connect these jacks to the tuner input of your pre amplifier or integrated amplifier for analogue audio playback. Be certain to observe proper channel connections using the colour-coded cables and connectors so that red connects right channels and white connects left channels.

**NOTE**: *Before making any audio connections, unplug all components of your audio system from their AC power outlets. To reduce the possibility of hum or noise in your system, place all audio interconnection cables away from both AC power cords and speaker wires.*

**4** **Optical Digital Output**: Connect this jack to the optical digital input of your pre amplifier or integrated amplifier, if available. Note that this digital output only contains the digital signal from the DAB stations. For FM/AM reception, you will have to connect the analogue outputs at all times.

**5** **DAB Antenna**: Connect a DAB antenna to this terminal.

**6** **AC Power Cord**: Connect this plug to an AC outlet. If the outlet is controlled by a switch, make certain that it is in the ON position.

# Introduction

## REMOTE CONTROL FUNCTIONS
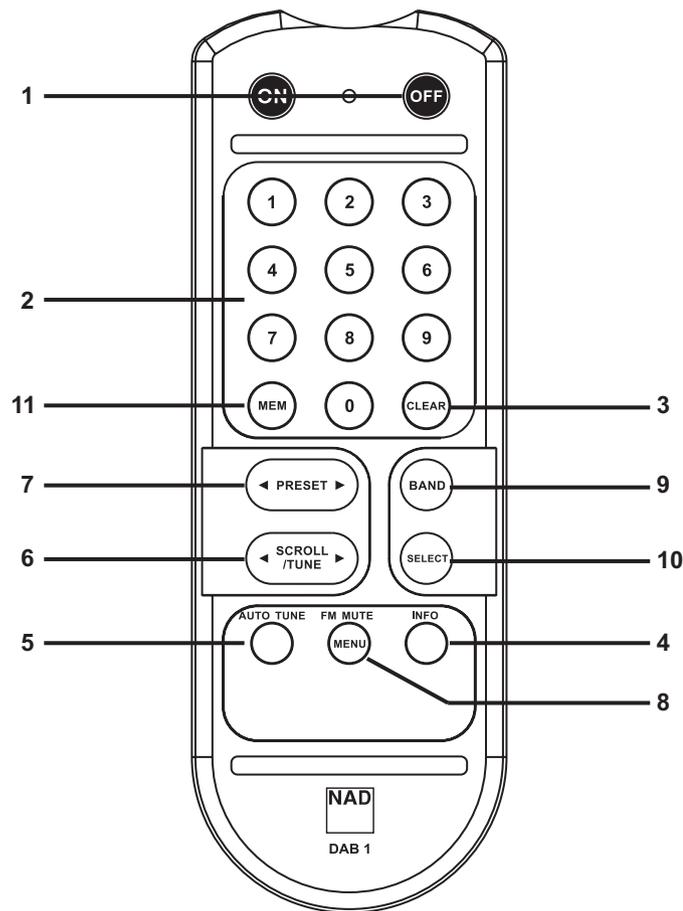
1. **Standby/Power On**: Press this button to turn on the C445 Tuner; press it again to turn the unit to standby. Note that the Power Indicator next to the switch will turn green when the unit is on.

2. **Numeric Keys**: These buttons serve as a ten-button numeric keypad to enter tuner preset positions or to tuned stations directly.

3. **Clear Button**: Press this button to clear presets from your station list.

4. **Info Button**: Pressing this button will change the content of the lower display line of the Information Display.

5. **Auto Tune Button**: In DAB mode, press this button to automatically scan all available local stations. To scan for all available stations, keep the button pressed for three seconds, until AUTO SCAN FULL is shown in the Information Display.

6. **Scroll / Tune Buttons**: Press ◀ to tune lower frequency stations and ▶ to tune higher frequency stations. When a station with a strong signal is tuned, the Information Display will read TUNED. Press again briefly to tune to the next frequency increment in Manual tune Mode, or keep pressed for automatic search for the next station with a signal strong enough for acceptable reception in Auto tune Mode. These buttons also control the parameters in the different menus, like the Control Ring on the front panel.

7. **Preset Buttons**: Press ◀ or ▶ to select the preset memories for DAB, FM and AM stations stored in the C445 memories.

8. **Menu/FM Mute Selector**: In DAB mode, pressing this button will activate station order, signal error rate, preset tune, software version, Dynamic Rate Control or manual tune features. In FM mode, press this button to select the stereo or mono mode for FM tuning. In the stereo mode, the word STEREO will be shown in the Information Display, and stereo reception will be provided when stations are transmitting stereo signals. In the mono mode, the left and right signals from stereo broadcasts will be mixed together and reproduced through all channels. Select MONO for better reception of weak signals.

9. **Band Selector**: Press this button to change between the DAB, FM and AM frequency bands.

10. **Select**: In FM or AM mode, press this button to select Auto tune, Manual tune or Preset tune.

11. **Memory Button**: Press this button to open the memory position that stores a preset Band Selector location in the tuner. 99 DAB presets can be stored, as well as 30 FM and 30 AM presets.
(See page 12 for more information on tuner Auto Tuning Button and Memory Button sets.)

### AUDIO CONNECTIONS

After unpacking the unit and placing it on a solid surface capable of supporting its weight, you will need to make the connections to your pre amplifier or integrated amplifier. These steps need to be done only when the tuner is first installed.

### AUDIO EQUIPMENT CONNECTIONS

We recommend that you use high-quality interconnect cables when making connections to source equipment and recorders to preserve the quality of the signals.

When making connections to audio source equipment it is always a good practice to unplug the unit from the AC wall outlet. This prevents any possibility of accidentally sending audio or transient signals to the speakers that may damage them.

1   Connect the analogue output of the C445 to the tuner input of your pre amplifier or integrated amplifier.

2   For DAB signals, connect the optical digital output of the C445 Tuner to an optical digital audio input of your pre amplifier or integrated amplifier, if available.

3   Assemble the AM Loop Antenna supplied with the unit as shown below.
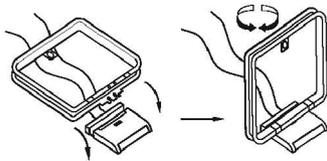
Connect it to the AM terminals.
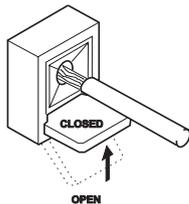
4   Connect an FM Antenna to the FM Antenna connection. The FM antenna may be an external roof antenna, an inside powered or wire lead antenna or a connection from a cable system. Note that if the antenna or connection uses 300-ohm twin-lead cable, you need to use a 300-ohm-to-75-ohm adaptor to make the connection. The supplied antenna is for indoor use only.

5   Connect a DAB Antenna to the DAB Antenna connection. The supplied antenna is for internal use only. Fix it to the wall in a vertical direction. The strength of the incoming signal can be shown on the Information Display by pressing the Select button. The more segments are visible in the lower display line, the stronger the signal. By changing the position of the antenna, you can increase the signal strength. You can also opt for an external antenna, available at your dealer.

For best reception place the unit as far as possible from sources of RF emissions such as a television or computer. It should also be placed away from contact with any metal object. In areas where signals are weak, an outdoor antenna may improve sound and reception quality. Connect the antenna making certain to also connect a ground wire to the GND (ground) terminals.

### DAB ANTENNA
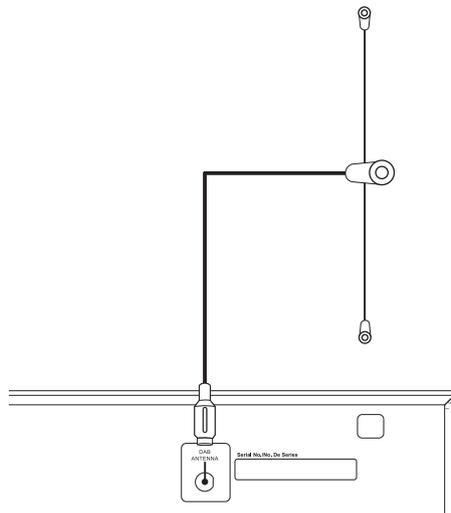
### DAB AND FM VHF EXTERNAL ANTENNA
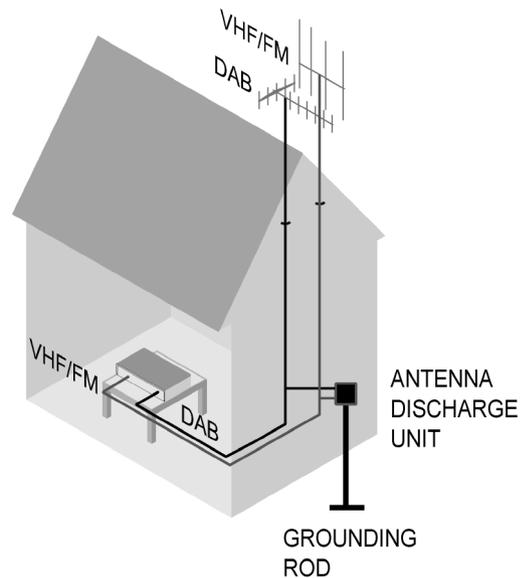
When all connections are complete, plug the power cord into a non-switched 230 Volt AC For best reception, place the antenna away from wall outlet.

# Operation

## BASIC OPERATION

The C445 Tuner is simple to operate, and very similar to NAD Tuners you may have used in the past. This section will explain the use of several features that may be new to you.

'AAA' UM-4 x2
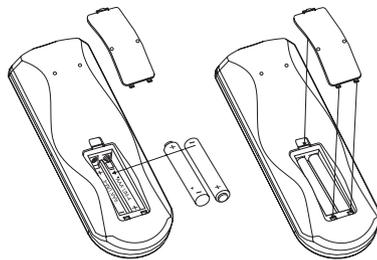
- Install the two supplied AAA batteries in the remote control as shown. Be certain to observe the (+) and (-) polarity indicators shown in the bottom of the battery compartment.
- When using the C445 Tuner for the first time, it will be placed in a standby mode, as indicated by the amber colour of the Power Indicator. Once the unit is in standby, you may begin a listening session by pressing the System Power Control on the front panel or the Power On button on the remote control. Note that the Power Indicator will turn green. To turn the unit off at the end of a listening session simply press the System Power Control on the front panel or the Standby button on the remote. This places the unit in the Standby mode, and the Power Indicator will turn amber to remind you that the unit is ready for operation when a power command is received from the remote control.

When you will be away from home for an extended period of time it is always a good idea to completely turn the unit off by unplugging it from the AC wall outlet. Note that the backup system in the C445 Tuner will retain information such as programmed presets for 14 days.

To dim the brightness of the front panel display, press the Dimmer button on the front panel. The first press will dim the lights to half normal. A second press will turn the display to normal brightness again.

### DAB OPERATION

When you turn on the tuner, the tuner will initialize. During 2 seconds, the display will show the following messages:

```
DAB initialize
Please wait
```

After the initialization process, the tuner will perform an automatic scan for available local digital radio stations. This sequence can not be interrupted. During the sequence, the following message will be visible on the display.

```
Autoscan local 0
>>>>>
```

The arrows show the progress of the sequence. On the right top side, you will see how many digital stations have been found.

```
Autoscan local10
>>>>>>>>>>
```

If no digital stations can be found, the display will show NO STATIONS AVAILABLE. You can now select MANUAL TUNE by pressing the Select Button or turn the Control Ring ) to select AUTOTUNE FULL or AUTOTUNE LOCAL to try to manually find available stations.

If no stations can be found, please check that the antenna is connected correctly and if your area is covered by DAB.

### STATION LIST

Once the C445 Tuner has finished the scanning sequence, it will display the available stations in alphanumeric order. Turn the Control Ring clockwise or counter-clockwise to scroll through the list of available stations. The upper display line in the Information Display will always show the current station you are listening to. The lower display line shows the next station in the list. To select the next station, simply press the Select button on the front panel or on the remote control.

The current station list will remain in the memory of the C445 Tuner. It can be updated by running the Autotune function as described above, or deleted by resetting the C445's memory (see page 14).

***NOTE****: The station list can be shown in different order. For more information, see page 11.*

It can occur that one of the stations in your list is temporarily not available. A "?" symbol will be visible in front of the station name to indicate such a station. If you select the station, the Information Display will show STATION NOT AVAILABLE, and will go back to the current radio station.

### PRESET SETTING

Besides having the C445 Tuner create a station list, you can also store presets into the tuners memory.

1  Tune to the desired station with the Control Ring.
2  Press the Memory Button on the front panel or on the remote control. You will see the 01 segments in the Information Display will start to blink.
3  Turn the Control Ring, until the desired station preset is shown in the Information Display. The desired preset can also be entered with the Numeric Keys on the remote control.
4  Within 4 seconds, press the Memory Button again to store the station in the memory.

```
BBC 6
PRESET MEMORY 01
```

### INFORMATION SETTINGS

The DAB signal contains besides the radio station additional information. This information can be made visible in the lower display line of the Information Display.

The following information is available to display:

1 Dynamic Label Segment (DLS): scrolling text, supplied by the broadcaster.
2 Program Type: describes the type of broadcast, e.g. Pop Music or Drama.
3 Multiplex Name: will show the name of the multiplex of the broadcaster.
4 Time and Date.
5 Bitrate: shows the bit rate of the incoming digital signal.
6 Channel and Frequency.

To change between the options, press the Info Button on the front panel or on the remote control. Note that the upper display line will always show the actual station. Pressing the Info Button again will show the next option. When you have found the information you would like to display, press the Select Button to activate the change.

### MENU CONTROL

The DAB mode in the C445 Tuner contains a menu structure to access various system options. To enter the menu, press the Menu Button on the front panel or on the remote control once. To scroll through the list of sections of the menu, turn the Control Ring or press the Scroll / Tune Buttons on the remote control. The sections will be shown on the lower display line in the Information Display. To enter a section and see the options, press the Select Button. You can scroll through the options with the Control Ring and activate an option by pressing the Select Button once that option is shown on the Information Display.

### SIGNAL ERROR RATE

In this section you can see the level of correction the C445 Tuner is applying to the DAB signal to maintain the audio quality. The level will be indicated by a numeric value between 0 (no correction) and 99 (maximum correction). For an acceptable quality, the value of 50 should not be exceeded.
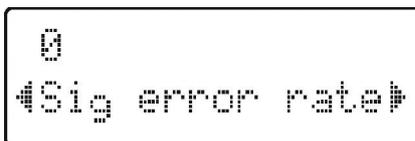
### PRESET TUNE

In this section you can tune presets of stations that broadcast only periodically, stations which were not found during the Autotune process. If you return to this preset in the future, and at that time there is no broadcast, or the broadcast signal strength is poor, then the display will show STATION NOT AVAILABLE.

### DYNAMIC RANGE CONTROL (DRC) VALUE

In this section you can set the level of compression of stations to eliminate the differences in dynamic range or sound level between radio stations. Popular music would normally be more compressed than classical music, resulting in possible different audio levels when changing from one station to the other. Setting the DRC to 0 means no compression, 1/2 indicates medium compression and 1 shows maximum compression. No compression is recommended, especially for classical music. Note that other radio stations may be far louder, so make sure that amplifier levels are not set too high when changing from one station to another.

### MANUAL TUNE

In this section you can activate Manual tuning, in case the Autotune function is unable to find any stations. You can also use Manual tuning to assist in positioning the antenna for best reception of a specific station.

# Operation

## FM/AM TUNER OPERATION

The C445's tuner is capable of tuning AM, FM and FM Stereo broadcast stations. Stations may be tuned manually or automatically, or they may be stored as favourite station presets and recalled from a 30-position memory.

### STATION SELECTION

1 Press the Band Selector on the front panel or on the remote control to select either the FM or AM band.

2 Press these buttons again at any time to switch between AM, FM and DAB.

3 Press the Select button to select the Auto tune mode from the following options: Manual tune, Auto tune or Preset tune.

4 To automatically search for the next higher- or lower-frequency station that has an acceptable signal turn the Control Ring on the front panel or press the Scroll / Tune buttons on the remote. On the remote, press and then release either Scroll / Tune button as soon as the tuner starts the frequency search.

To manually search, select the Manual tune mode by pressing the Select button until the Information Display shows Manual tune. Turn the Control Ring to increment the frequency step by step. When the Information Display shows TUNED, the station is properly tuned and should be heard with clarity.

*NOTE*: *When the FM reception of a stereo station is weak, the audio quality will be increased by switching to Mono mode by pressing the FM Mute Selector on the front panel so that the STEREO indication changes to MONO.*

### PRESET TUNING

Up to 30 FM and 30 AM stations may be stored in the C445's memory for easy recall using the remote control. In order to program preset stations into the memory, you must use the front panel controls.

To enter a station into the memory, first tune the station using the steps outlined above. Then:

1 Press the Memory Button on the front panel or on the remote control. Note that CH01 starts blinking in the lower display line of the Information Display.

2 Within four seconds, turn the Control Ring until the Information Display shows the corresponding location where you wish to store this station's frequency.

3 Press the Memory Button again to confirm.

4 Repeat the process after tuning any additional stations to be preset.

### AUTO PRESET

Preset stations may also be programmed automatically for the entire FM band. To automatically enter each station that may be tuned with acceptable quality into the C445's preset memories, first select the FM band. Next, press and hold the Memory Button until the station frequency indication begins to increase. Release the button and note that the tuner will search the entire FM band, and stop briefly at each station that has acceptable signal strength. The C445 will automatically assign a preset number to each station, and then search for the next station.

*NOTE*: *Using the automatic tuning mode in areas with more than 30 FM stations will completely fill the preset memories, and overwrite any previously memorized presets for either AM or FM stations.*

*TIP*: *The automatic scan process may enter stations that you do not wish to retain in the memory. These unwanted stations may be removed from the memory by pressing the Memory Button once the preset to be deleted is shown on the display. Within 5 seconds press the Clear Button on the remote control to confirm the deletion.*

### RECALLING PRESET STATIONS

To manually select a station previously entered in the preset memory, press the Numeric Keys that correspond to the desired station's memory location. To manually tune through the list of stored preset stations one by one, press the Select Button until the Information Display shows Preset tune. Turn the Control Ring or press the Scroll / Tune Buttons on the remote control to scroll through the list of presets.

### RDS OPERATION (FM TUNER OPERATION)

RDS (Radio Data System) transmits station call signs or network information, station programme type, text messages about the station or specifics of a musical selection and the correct time.

### RDS TUNING

When an FM station is tuned in and it contains RDS data, the C445 will automatically display the Program Service, which is the station's call sign, in the lower display line of the Information Display, with some private stations also offering other information changing every 2 to 5 seconds.

### RDS DISPLAY OPTIONS

When an RDS station is tuned, press the INFO Button on the remote control or on the front panel to cycle through the RDS displays in the following order:

- The Program Service or Station Name.
- The current time of the day CLOCK TIME as transmitted by the station. It will take 3-5 seconds for the time to appear. In the meantime the word RDS CLOCK TIME will flash in the display. Note that the accuracy of the time message is set by the radio station, not by the C445 Tuner.
- The Program Type (PTY) as shown in the following list in this manual.
- A Radio Text message, containing special information from the broadcast station. Note that this message will scroll across the display to permit messages longer than the positions in the display. It will take 3 seconds for the text message to appear, in the meantime the word RDS RADIO TEXT will flash in the display. If no Radio Text is available, the display will show the Program Service (Station Name).
- Traffic Announcement. When selected, TRAFFIC ANNOUNCE will blink for 3 seconds. After 3 seconds, the tuner will scan the FM band searching for available traffic announcements.
- The station's frequency. Some RDS stations may not choose to include some of these additional features. If the data required for the selected mode is not being transmitted, the Information Display will show a NO PTY, NO TEXT or NO TIME message after the individual time out or will switch back to the previous display.
- For any FM station the RDS function requires a strong enough signal for proper operation. If you receive a partial message or see any RDS indicator going on and off, try slowly adjusting the antenna to improve the signal strength or tune to another, stronger, RDS station.

### PROGRAM SEARCH (PTY)

A major benefit of RDS is its ability to encode broadcasts with Program Type (PTY) codes that indicate the type of material being broadcast. The following list shows the abbreviations used to indicate each PTY along with an explanation of the PTY:

- NEWS: News
- CURRENT AFFAIRS: Current Affairs
- INFORMATION: Information
- TRAFFIC: Traffic information
- SPORT: Sport
- EDUCATION: Education
- DRAMA: Drama
- CULTURES: Culture
- SCIENCE: Science
- VARIED SPEECH: Varied
- POP MUSIC: Pop Music
- ROCK MUSIC: Rock Music
- EASY LISTENING: Easy Listening Music
- LIGHT CLASSIC M: Light Classical Music
- SERIOUS CLASSICS: Serious Classical Music
- OTHER MUSIC: Other Music
- WEATHER & METR: Weather
- FINANCE: Finance
- CHILDREN'S PROGS: Children's Programmes
- SOCIAL AFFAIRS: Social Affairs
- RELIGION: Religion
- PHONE IN: Phone In
- TRAVEL& TOURING: Travel
- LEISURE& HOBBY: Leisure
- JAZZ MUSIC: Jazz Music
- COUNTRY MUSIC: Country Music
- NATIONAL MUSIC: National Music
- OLDIES MUSIC: Oldies Music
- FOLK MUSIC: Folk Music
- DOCUMENTARY: Documentary
- ALARM TEST: Alarm Test
- ALARM-ALARM!: Alarm

You may search for a specific Program Type (PTY) by following these steps:
1 Press and hold the Info Button until the Information Display will show RDS PROGRAM TYPE.
2 Turn the Control Ring on the front panel to scroll through the list of program types. Once you have found the program type you would like to listen to, press the Select Button.
3 Turn to Control Ring again to start the PTY Search.

When a station is tuned, the search will stop and the display will show the station's "Call Letters" or other "Program Service" information.
To turn off the PTY Search at any time, press the INFO Button again.
NOTE: Many stations do not transmit a specific PTY. The display will stay blank when such a station is selected and PTY is active.

# Reference

## TROUBLESHOOTING

This unit is designed for trouble-free operation. Most problems users encounter are due to operating errors. If you have a problem, first check this list for a possible solution. If the problem persists, consult your authorized Service Centre.

| Symptom | Cause/Correction |
|---|---|
| **No lights appear when System Power button is pressed** | Unit is plugged into a live outlet. Make sure the outlet is active. |
| **No sound is heard** | Tune to an active station. Check for correct amplifier settings. Check the connections and wires. |
| **Sound distorts, particularly in stereo mode.** | Use a more directional antenna. |
| **Intermittent or continuous buzzing or hissing** | Place the unit further away from these appliances. Install noise filters on the appliances. |
| **Display says 'No stations Available'** | Check that antenna is connected. Ensure that DAB coverage exists in your area. |
| **Display has gone blank or says 'service off air'** | This may occur if a broadcaster changes the label of a service or removes a label whilst you are listening to it. Try to retune to this station, using the Autotune procedure. |
| **Unit's operation or the displays seem abnormal** | To correct this problem, first unplug the unit from the AC wall outlet and wait at least three minutes. After the pause, reconnect the AC power cord and check the unit's operation. |
| | Reset the C445 Tuner; press and hold the Menu/FM Mute Button for 5 seconds, until the Information Display shows FACTORY RESET. Note that when the system is reset, all tuner presets will be lost and must be re-entered. |
| | Press the **RESET** switch lightly once or twice with a pencil or ballpoint pen as per example below. |
| | If these steps do not solve the problem, consult your dealer or an authorized service centre. |



Rear Panel
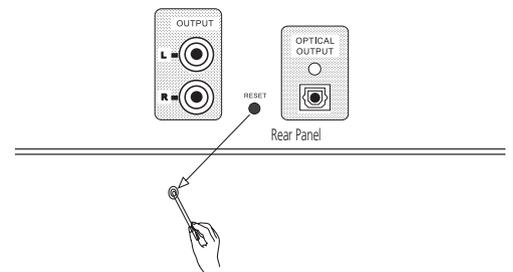
**FM SECTION**

| | |
|---|---|
| Frequency Range: | 87.50 MHz to 108.00 MHz (50 kHz steps) |

Signal-to-Noise Ratio: 65dB (Mono) 60dB (Stereo)

| | |
|---|---|
| Presets: | 30 |

**AM SECTION**

| | |
|---|---|
| Frequency Range: | 522 kHz to 1620 kHz (9 kHz steps) |
| Signal-to-Noise Ratio: | 35dB |
| Presets: | 30 |

**DAB SECTION**

| | |
|---|---|
| Band lll: | 174MHz - 240MHz |
| Band L : | 1452MHz - 1492MHz |
| Max signal: | ~ -3dBm |
| Sensitivity: | ~ -96dBm |
| Adjacent Channel Rejection: | ~ 35dB |
| Presets: | 99 |
| Display: | 2-line by 16-character DOT Matrix |
| Audio Output Stereo: | 2.5V P-P |
| 48kHz sample rate, | 16 bit sample resolution |
| Optical S/PDIF: | IEC60958 Compliant. |

48kHz sample rate, 24 bit sample resolution

**GENERAL**

| | |
|---|---|
| Power Requirement: | 230-240V AC, 50Hz |
| Power Consumption: | 12W 0.8W(standby) |

**DIMENSIONS (MAX)**

| | |
|---|---|
| Width Height Depth: | 435 x 86 x 318mm |
| Weight: | 6kg |

Depth measurement includes knobs, buttons and terminal connections. Height measurement includes feet and chassis. All features and specifications are subject to change without notice.

**NAD**

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