

HDM-1L

HDMI to Digital (DVB-T) Modulator



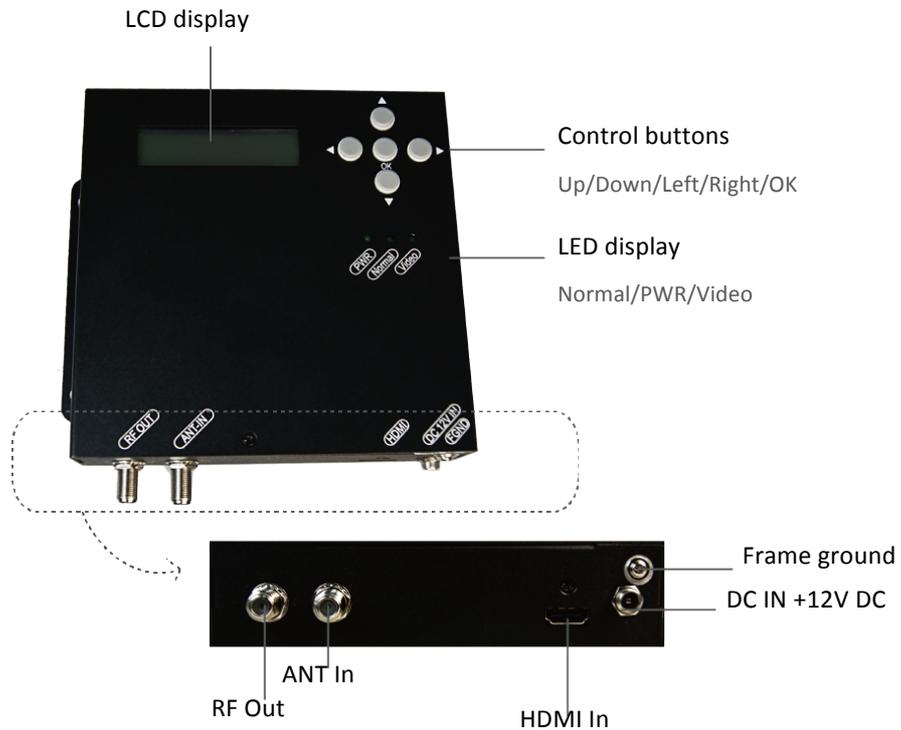
INSTRUCTION MANUAL

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INTRODUCTION

General Description



Main Features

The HDM-1L is the digital head-end equipment with encoder and modulator together and it is the high definition DVB-T modulator with composite video and HDMI inputs. The design of HDM-1L is to achieve 1080p video resolution by using H.264 encoding engine and state-of-art COFDM modulation technologies.

The HDM-1L can encode and modulate the video/audio signals from TV satellite receiver, surveillance camera or video/media player and then send a RF signal to a LCD TV or a set-top box.

- ◆ Integration of H.264/AVC encoder and DVB-T COFDM modulator in one box
- ◆ HDMI and composite video (CVBS) inputs
- ◆ Compliant with HDMI 1.3, HDCP 1.4 and DVI 1.0 specification
- ◆ Compliant ETSI EN300 744 DVB-T standard
- ◆ Programmable PMT PID/Video PID/Audio PID/PCR PID
- ◆ Programmable service name, network name, TS ID, ONID, NID, LCN and P.D.S.
- ◆ User friendly front panel operation via button and LCD display

GENERAL SAFETY INTRODUCTION

◆ Read Instruction

All the safety and operating instructions should be read before the product is operated.

◆ Retain Instruction

The safety and operating instructions should be retained for future reference.

◆ Heed Warnings

All warnings on the product and in the operating instructions should be adhered to.

◆ Follow Instructions

All operating and use instructions should be followed.

Basic Safety introductions

- Unplug this product from the wall outlet before cleaning.
Do not use liquid cleaners or aerosol cleansers. Use a damp cloth for cleaning.
- Do not use attachments that are not recommended by the product manufacturer as they may cause hazards.
- Do not use this product near water. For example, near a bathtub, wash bowl, kitchen sink or laundry tub; in a wet basement; or near a swimming pool; and the like.
- Do not place this product on an unstable cart, stand, tripod, bracket, or table.
The product may fall, causing serious injury to a child or adult and serious damage to the product.
Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.
- A product and cart combination should be moved with care. Quick stops, excessive force, and un-
even surfaces may cause the product and cart combination to overturn.
- Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or similar surface. This product should not be placed in a built-in installation such as bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.
- This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supplied to your home, consult your product dealer or local power company. For products intended to operate from battery power, or other sources, refer to the operating instructions.
- Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.

- This product may be equipped with a polarized alternating-current line plug (a plug having one blade wider than the other) This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
- If this product is equipped with a three-wire grounding-type plug, a plug having a third (grounding) pin, the plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.
- If an outside antenna or cable system is connected to the product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.
- For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.
- Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.
- An outside antenna system should not be located in the vicinity of overhead power lines, other electric light or power circuits, where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them may be fatal.
- Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.
- Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
- **Damage Requiring Service**
Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
 - A. When the power-supply cord or plug is damaged,
 - B. If liquid has been spilled, or objects have fallen into the product,
 - C. If the product has been exposed to rain or water,
 - D. If the product does not operate normally by following the operating instructions.

Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation,

E. If the product has been dropped or damaged in anyway, and

F. When the product exhibits a distinct change in performance—this indicates a need for service.

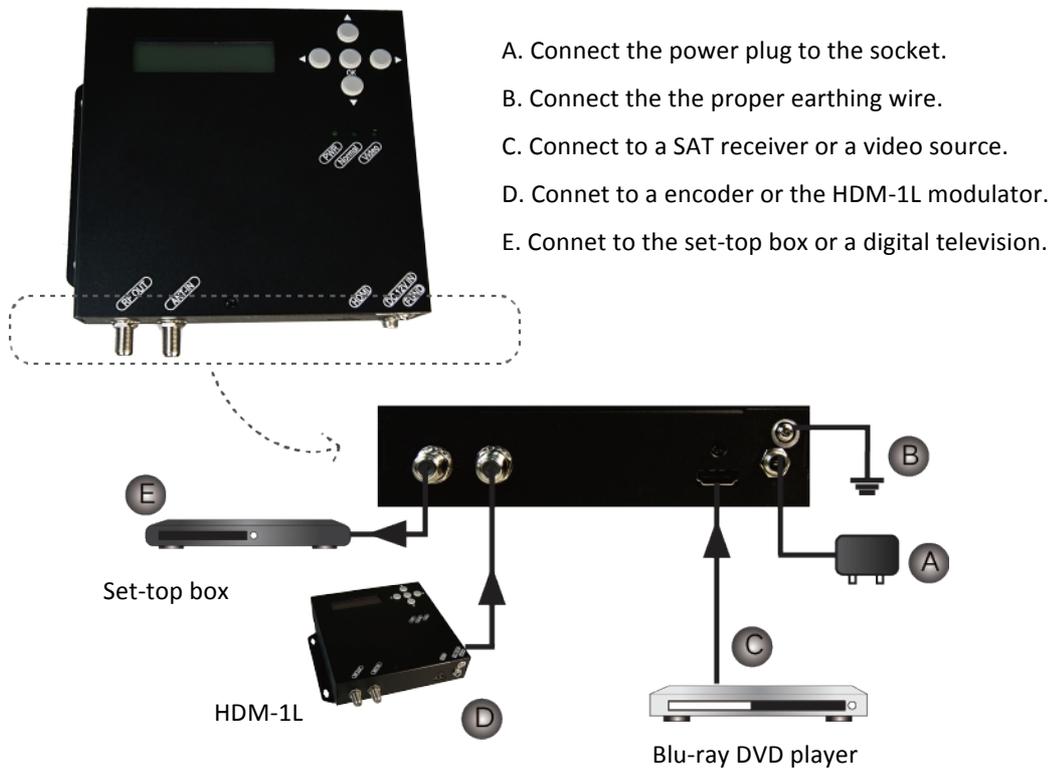
- When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutes may result in fire, electric shock or other hazards.
- Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.
- The product should be mounted to a wall or ceiling only as recommended by the manufacturer.
- The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

TECHNICAL SPECIFICATIONS

| INPUT | |
|-------------------------|--|
| Video input | HDMI |
| Audio input | HDMI |
| Connector type | Video: HDMI Type A receptacle Audio: HDMI Type A receptacle |
| ENCODING | |
| Video resolution | Up to 1080p@30Hz |
| PC resolution | 800×600 / 1024×768 / 1280×600 1280×720 / 1280×768 / 1360×768/1366×768 |
| Video compression | H.264/AVC |
| Audio compression | MPEG-1 Audio Layer II (ISO/IEC 11172-3) |
| PID setting | PMT/Video & Audio/ PCR |
| PSI | NID/ONID/P.D.S./TS ID |
| LCN | Up to 1023 |
| Service name | At most 15 characters |
| MODULATION | |
| Number of carriers | 2K/8K |
| Guard interval | 1/4, 1/8, 1/16, 1/32 |
| Code rate | 1/2, 2/3, 3/4, 5/6, 7/8 |
| Constellation | QPSK/16QAM/64QAM |
| OUTPUT | |
| COFDM standard | DVB-T in accordance with ETSI EN 300 744 |
| Frequency range | 100-860MHz |
| Output level | 90dBμV |
| Channel bandwidth | 6-8MHz |
| MER | >36dB |
| Connector type | 'F' Female |
| CONTROL | |
| Local operation | LCD panel |
| GENERAL CHARACTERISTICS | |
| Type | Wall mount |
| Dimensions / Weight | 36.5×150×150mm / 0.48kg |
| Power supply | 12V DC |
| Power consumption | 8W |

INSTALLATION

Please follow the instructions below to install the HDM-1L.



For the protection of your equipment and its proper working is necessary to connect the HDM-1L to a ground connection. See instruction B.

GENERAL USE OF THE HDM-1L

Below is described how to operate the HDM-1L by using the control buttons on the front panel.

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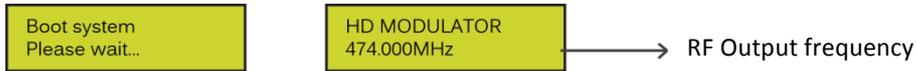
In the menus and submenus, press the up or down button to scroll up or down.
In the settings, press the up or down button to modify values.
- 

In the menu, press the right or left button to scroll forwards or backwards.
In the settings, move the right or left button to scroll forwards or backwards.
- 

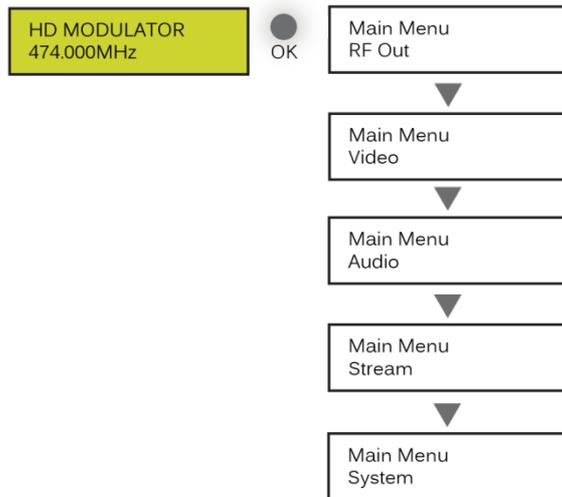
In the menu, press the OK button to select submenu.
In the submenus, press the OK button to select the setting.
In the settings, press the OK button to confirm the setting.

QUICK MENU GUIDE

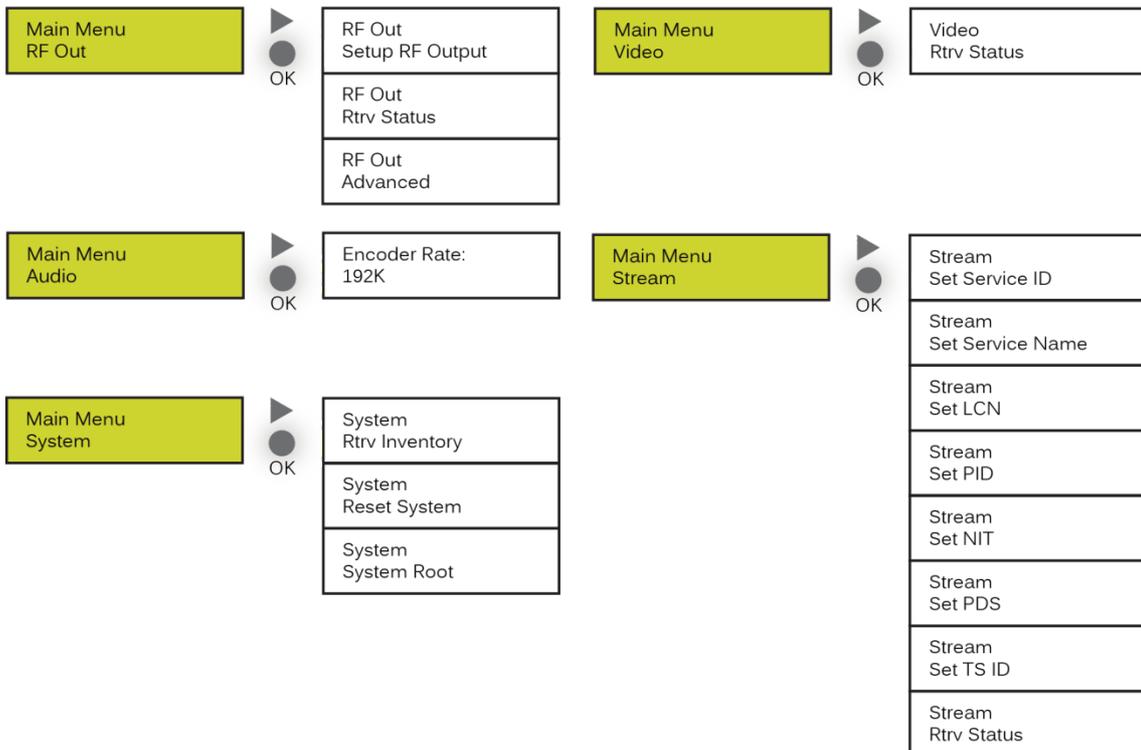
System booting



Main menu



Submenu



OPERATING ADJUSTMENT VIA LCD & BUTTONS

For 'Menu & Submenu' settings, press the OK button to access the adjustment mode.

In this mode '*' will be displayed in the upper right corner. Use the UP or DOWN buttons to select parameter values, then press OK button to confirm the setting.

RF OUTPUT

A. Setup RF Output

| | |
|------------------------------|---|
| RF Output Setup RF Output | Following the main Submenu flow charts enter the 'Setup RF Output' mode. |
| Country: Europe | Press the OK button to enter the next page for country selection. |
| Country: * Europe | Press the OK button to access the adjustment mode. The LCD display will show an asterisk '*' in the upper right corner. You can now press the UP or Down buttons to select the country you require. Press OK button to save. (Europe, Taiwan, OC NTSC, OC PAL, Australia, New Zealand.) |

Use the same steps above to adjust the following items.

| | |
|-----------------------------|--|
| Area: France | France, Italy, Nordic, UK, Belgium, Others |
| Frequency: E11(219.5MHz) | E05(177.5MHz)~E69(858MHz) ※ |
| Output Level: 80dBuV | 75~90dBuV |
| Carrier: 8K | 2K, 8K |
| Constallation: QAM64 | QAM64, QAM16, QPSK |
| FEC: 3/4 | 1/2, 2/3, 3/4, 5/6, 7/8 |
| Guard Interval: 1/32 | 1/4, 1/8, 1/16, 1/32 |
| Are you sure? y | When all the item in 'Setup RF Output' are done, there will be a confirmation on the display. Press UP or Down button to select YES or NO. Select 'y' for YES, all the settings above will be stored in memory. Select 'n' for NO to cancel. |

B. Retrieve Status

Following the main Submenu flow charts enter the 'Retrieve Status' mode, you can check the parameters of your previous setting in 'Setup RF Output'.

C. Advanced

| | |
|---------------------------|---|
| RF Output Advanced | Following the main Submenu flow charts enter the 'RF Output Advanced' mode. |
| Freq Offset: No Offset | Frequency Offset : -10K ~ +10K, No Offset |
| RF Output: Enable | Enable, Disable |
| Are you sure? y | When all the item in 'RF Output Advanced' are done, there will be a confirmation on the display. Press UP or Down button to select YES or NO. Select 'y' for YES, all the settings above will be stored in memory. Select 'n' _____ for NO to cancel. |

VIDEO

A. Retrieve Status

The HDM-1L will detect and analyze the input video signal automatically then you can check the parameters or the status in the 'Video Retrieve Status' mode.

| | |
|---------------------------------|--|
| Video Rtrv Status | Following the main Submenu flow charts enter the 'Retrieve Status' mode. |
| Video Source: HDMI | Automatically detect and analyze. |
| In Resolution: 1920×1080/50I | Automatically detect and analyze. |
| Encoder Rate: 11.0Mbps | Automatically detect and analyze. |
| Out Resolution: 1080i | Automatically detect and analyze. |
| Encoder Status: Running | Automatically detect and analyze. |

AUDIO

| | |
|-----------------------|---|
| Audio Rtrv Status | Following the main Submenu flow charts enter the 'Audio Rtrv Status'. Press the OK button to enter the Submenu. |
| Encoder Rate: 192K | Fixed value. 192K. |

STREAM

A. Set Service ID

| | |
|-------------------------|--|
| Video Set Service ID | Following the main Submenu flow charts enter the 'Set Service ID'. Press the OK button to enter the Submenu. |
|-------------------------|--|

| | |
|------------------------|--|
| Service ID: 256 | <p>Press the OK button to enter service ID mode. Press the OK button to access edit mode. Now press the UP or Down buttons to set ID. Press the Right button to advance to the next character and the Up or Down buttons to set. Press the OK button to save. (1-65535)</p> <p>When all the items in 'Stream Service ID' are done, there will be a confirmation on the display. Press UP or Down button to select YES or NO. Select 'y' for YES, all the settings above will be stored in memory. Select 'n' for NO to cancel.</p> |
| Are you sure? y | |

B. Set Service Name

| | |
|----------------------------|---|
| Stream Set Service Name | <p>Following the main Submenu flow charts enter the 'Set Service Name'. Press the OK button to enter the Submenu.</p> |
| Service Name: HD AV MOD | <p>Edit the service name by preference. 0~9 ; A~Z ; "-" ; "" 15 characters.</p> |
| Are you sure? y | <p>When all the item in 'Stream Service Name' are done, there will be a confirmation on the display. Press UP or Down button to select YES or NO. Select 'y' for YES, all the settings above will be stored in memory. Select 'n' for NO to cancel.</p> |

C. Set LCN

| | |
|------------------------|--|
| Stream Set LCN | <p>Following the main Submenu flow charts enter the 'Set LCN'.</p> <p>Press the OK button to enter the Submenu.</p> |
| LCN: 1 | <p>Edit the logical channel number by preference. 1~1023</p> |
| Are you sure? y | <p>When all the item in 'Stream set LCN' are done, there will be a confirmation on the display. Press UP or Down button to select YES or NO. Select 'y' for YES, all the settings above will be stored in memory. Select 'n' for NO to cancel.</p> |

D. Set PID

| | |
|------------------------|--|
| PMT: 129 | 32~8190, excluding 71 |
| PCR: 308 | 32~8190, excluding 71 |
| Video: 2064 | 32~8190, excluding 71 |
| Audio: 2068 | 32~8190, excluding 71 |
| Are you sure? y | <p>When all the item in 'Stream set PID' are done, there will be a confirmation on the display. Press UP or Down button to select YES or NO. Select 'y' for YES, all the settings above will be stored in memory. Select 'n' for NO to cancel.</p> |

E. Set NIT

| | |
|--------------------------|---|
| OrgNetwork ID: 1 | <p>According to different area to setup the parameter values. 1~65535</p> |
| Network ID: 1 | 1~65535 |
| Network Name: NETWORK | A-Z, 0-9, 7 Characters |

| | |
|---------------|---|
| Are you sure? | y |
|---------------|---|

When all the item in 'Stream set NIT' are done, there will be a confirmation on the display. Press UP or Down button to select YES or NO. Select 'y' for YES, all the settings above will be stored in memory. Select 'n' for NO to cancel.

F. Set PDS

| | |
|---------------------------|-------|
| Private Data: 00000028 | 8 Hex |
| Are you sure? | y |

When all the item in 'Stream set PDS' are done, there will be a confirmation on the display. Press UP or Down button to select YES or NO. Select 'y' for YES, all the settings above will be stored in memory. Select 'n' for NO to cancel.

I. Set TS ID

| | |
|---------------|---------|
| TS ID: 201 | 1~65535 |
| Are you sure? | y |

When all the item in 'Stream set TS ID' are done, there will be a confirmation on the display. Press UP or Down button to select YES or NO. Select 'y' for YES, all the settings above will be stored in memory. Select 'n' for NO to cancel.

J. Retrieve Status

Following the main Submenu flow charts enter the 'Stream' mode. In 'Retrieve Status' mode, press the OK button to check the parameters of your previous settings in 'Stream'.

SYSTEM

A. Retrieve Inventory

| | |
|---------------------------------|--|
| System Rtrv Inventory | Following the main Submenu flow charts enter the ' System Retrieve Inventory'. Press the OK button ro enter the Submenu. |
| System Info HW:2.00 SW: 2.00 | Press the OK button to enter the next page, you can check both hard-ware and software version. |
| System Info July 14 2014 | Press the RIGHT button to access the next page for more information.Press the OK button to exit. |

B. Reset System

| | |
|---------------------------|---|
| System Reset System | Following the main Submenu flow charts enter the ' System Reset System'.Press the OK button ro enter the Submenu. |
| Reset Mode: Hard Reset | Hare Reset, Soft Reset, Reset to default |
| Are you sure? | y |

When the system reset is selected, there will be a confirmation on the display. Press UP or Down button to select YES or NO. Select 'y' for YES, all the settings above will be stored in memory. Select 'n' for NO to cancel.

CHANNEL TABLE LIST-EUROPE

| Channel | Channel Frequency MHz | Digital central Frequency MHz | Channel | Channel Frequency MHz | Digital central Frequency MHz | Channel | Channel Frequency MHz | Digital central Frequency MHz |
|------------------------------|-----------------------|-------------------------------|----------------|-----------------------|-------------------------------|---------------|-----------------------|-------------------------------|
| Standard B + G Europe | | | | | | | | |
| Band I | | | S23 | 318-326 | 322 | Band V | | |
| E2 | 47-54 | 50.5 | S24 | 326-334 | 330 | E38 | 606-614 | 610 |
| E3 | 54-61 | 57.5 | S25 | 334-342 | 338 | E39 | 614-622 | 618 |
| E4 | 61-68 | 64.5 | S26 | 342-350 | 346 | E40 | 622-630 | 626 |
| Band S | | | S27 | 350-358 | 354 | E41 | 630-638 | 634 |
| S1 | 104-111 | 107.5 | S28 | 358-366 | 362 | E42 | 638-646 | 642 |
| S3 | 111-118 | 114.5 | S29 | 366-374 | 370 | E43 | 646-654 | 650 |
| S3 | 118-125 | 121.5 | S30 | 374-382 | 378 | E44 | 654-662 | 658 |
| S4 | 125-132 | 128.5 | S31 | 382-390 | 386 | E45 | 662-670 | 666 |
| S5 | 132-139 | 135.5 | S32 | 390-398 | 394 | E46 | 670-678 | 674 |
| S6 | 139-146 | 142.5 | S33 | 398-406 | 402 | E47 | 678-686 | 682 |
| S7 | 146-153 | 149.5 | S34 | 406-414 | 410 | E48 | 686-694 | 690 |
| S8 | 153-160 | 156.5 | S35 | 414-422 | 418 | E49 | 694-702 | 698 |
| S9 | 160-167 | 163.5 | S36 | 422-430 | 426 | E50 | 702-710 | 706 |
| S10 | 167-174 | 170.5 | S37 | 430-438 | 434 | E51 | 710-718 | 714 |
| Band III | | | S38 | 438-446 | 442 | E52 | 718-726 | 722 |
| E5 | 174-181 | 177.5 | S39 | 446-454 | 450 | E53 | 726-734 | 730 |
| E6 | 181-188 | 184.5 | S40 | 454-462 | 458 | E54 | 734-742 | 738 |
| E7 | 188-195 | 191.5 | S41 | 462-470 | 466 | E55 | 742-750 | 746 |
| E8 | 195-202 | 198.5 | Band IV | | | E56 | 750-758 | 754 |
| E9 | 202-209 | 205.5 | E21 | 470-478 | 474 | E57 | 758-766 | 762 |
| E10 | 209-216 | 212.5 | E22 | 478-486 | 482 | E58 | 766-774 | 770 |
| E11 | 216-223 | 219.5 | E23 | 486-494 | 490 | E59 | 774-782 | 778 |
| E12 | 223-230 | 226.5 | E24 | 494-502 | 498 | E60 | 782-790 | 786 |
| Band S | | | E25 | 502-510 | 506 | LTE | | |
| S11 | 230-237 | 233.5 | E26 | 510-518 | 514 | E61 | 790-798 | 794 |
| S12 | 237-244 | 240.5 | E27 | 518-526 | 522 | E62 | 798-806 | 802 |
| S13 | 244-251 | 247.5 | E28 | 526-534 | 530 | E63 | 806-814 | 810 |
| S14 | 251-258 | 254.5 | E29 | 534-542 | 538 | E64 | 814-822 | 818 |
| S14 | 258-265 | 261.5 | E30 | 542-550 | 546 | E65 | 822-830 | 826 |
| S16 | 265-272 | 268.5 | E31 | 550-558 | 554 | E66 | 830-838 | 834 |
| S17 | 272-279 | 275.5 | E32 | 558-566 | 562 | E67 | 838-846 | 842 |
| S18 | 279-286 | 282.5 | E33 | 566-574 | 570 | E68 | 846-854 | 850 |
| S19 | 286-293 | 289.5 | E34 | 574-582 | 578 | E69 | 854-862 | 858 |
| S20 | 293-300 | 296.5 | E35 | 582-590 | 586 | | | |
| S21 | 302-310 | 306 | E36 | 590-598 | 594 | | | |
| S22 | 310-318 | 314 | E37 | 598-606 | 602 | | | |