

HDM-1L

HDMI to Digital (DVB-T) Modulator



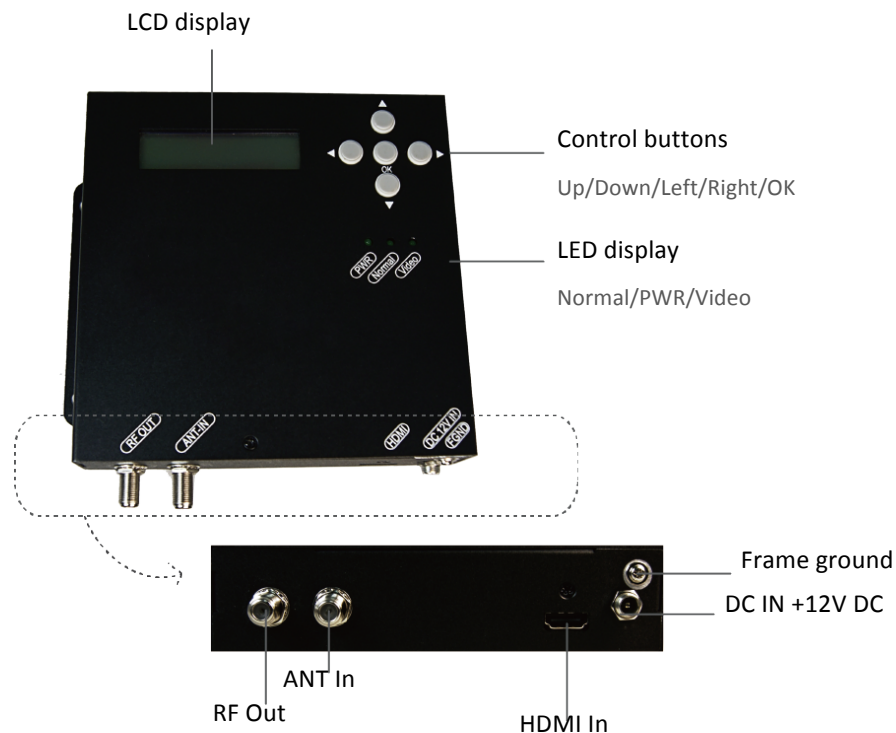
INSTRUCTION MANUAL

CONTENTS

P1	Introduction
P2	Safety instruction
P4	Technical specification
P5	Installation
P6	Quick menu guide
P7	Operating adjustment via LCD & buttons
P13	Appendix

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

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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,

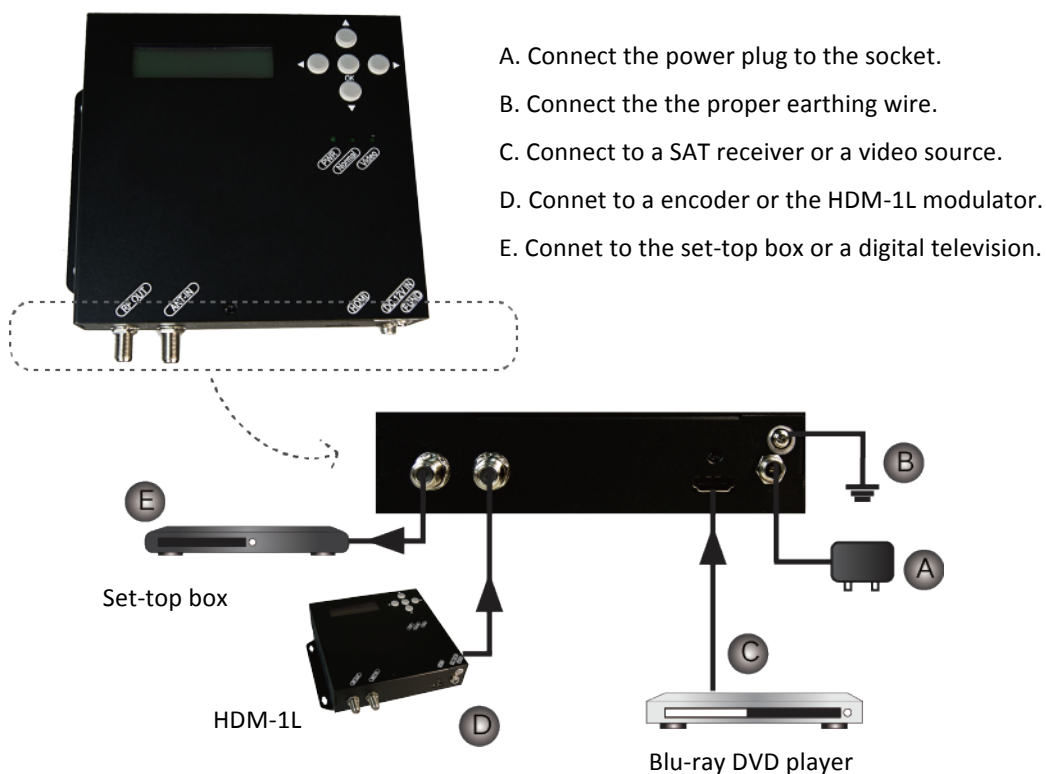
- E. If the product has been dropped or damaged in anyway, and
 - F. When the product exhibits a distinct change in performance—this indicates a need for service.
- When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the 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.

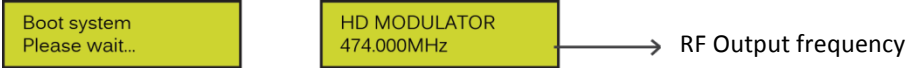
GENERAL USE OF THE HDM-1L

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

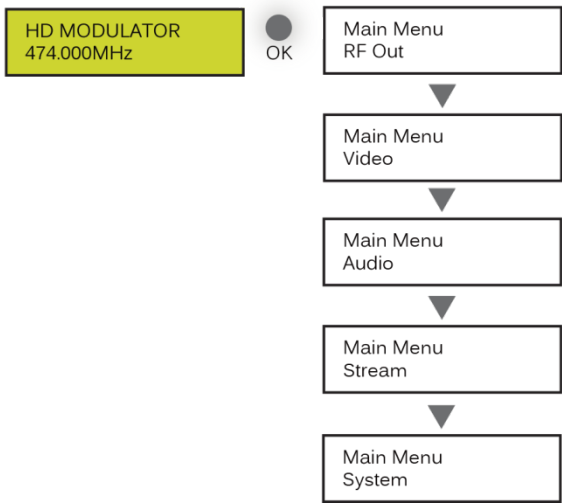
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 - In the menus and submenus, press the up or down button to scroll up or down.
 - In the settings, press the up or down button to modify values.
- 
 - In the menus, press the right or left button to scroll forwards or backwards.
 - In the settings, move the right or left button to scroll forwards or backwards.
- 
 - In the menus, 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

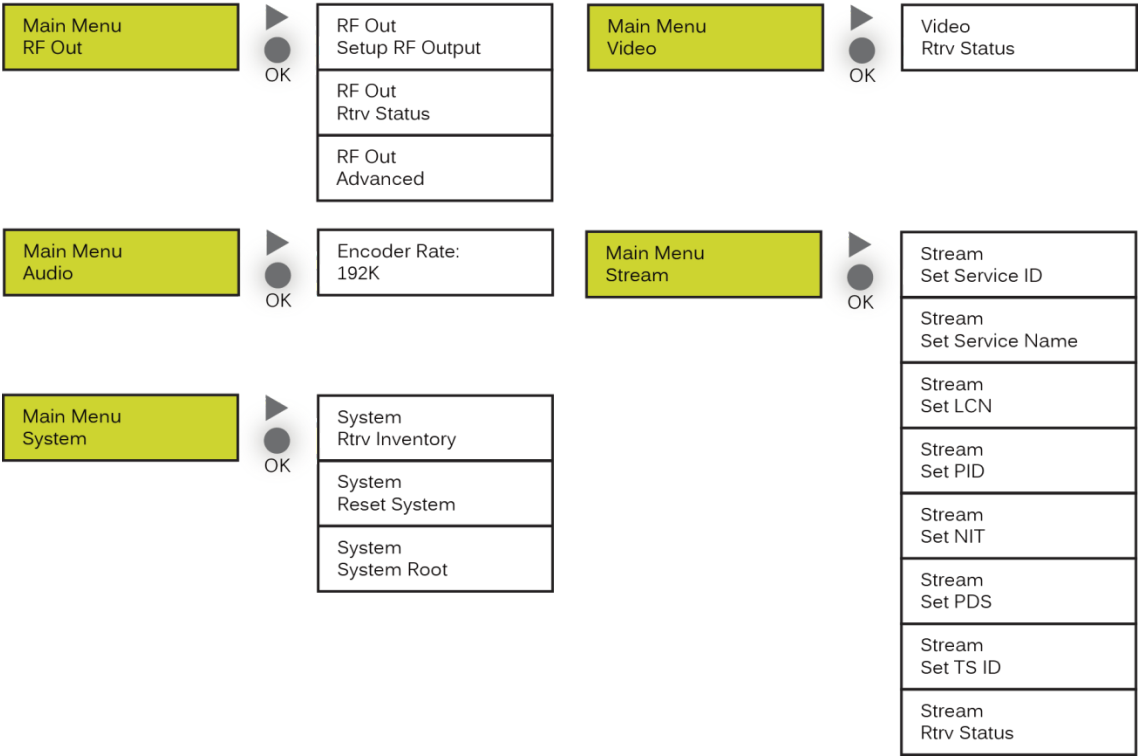
System booting



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.
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Service ID: 256	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)
Are you sure? y	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.

B. Set Service Name

Stream Set Service Name	Following the main Submenu flow charts enter the 'Set Service Name'. Press the OK button to enter the Submenu.
Service Name: HD AV MOD	Edit the service name by preference. 0~9 ; A~Z ; "-" ; " " 15 characters.
Are you sure? y	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.

C. Set LCN

Stream Set LCN	Following the main Submenu flow charts enter the 'Set LCN'. Press the OK button to enter the Submenu.
LCN: 1	Edit the logical channel number by preference. 1~1023
Are you sure? y	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.

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	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.

E. Set NIT

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

Are you sure?	y
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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	
Are you sure?	y

8 Hex

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	
Are you sure?	y

1~65535

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	
System Info HW:2.00 SW: 2.00	
System Info July 14 2014	

Following the main Submenu flow charts enter the 'System Retrieve Inventory'. Press the OK button to enter the Submenu.

Press the OK button to enter the next page, you can check both hardware and software version.

Press the RIGHT button to access the next page for more information. Press the OK button to exit.

B. Reset System

System Reset System	
Reset Mode: Hard Reset	
Are you sure?	y

Following the main Submenu flow charts enter the 'System Reset System'. Press the OK button to enter the Submenu.

Hard Reset, Soft Reset, Reset to default

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			