

# Product Specification

< ***C61-500*** >

V 1.4

**HUMAX Co. Ltd,**

**Americas Marketing Team**

1/10

# Table of Contents

1. Overview.....	3
1.1. Product Summary .....	3
2. H/W specification.....	4
2.1. General Specification .....	4
3. S/W specification .....	6
4. Industrial Design and Mechanical .....	7
4.1. Design Overview .....	7
4.1.1. Front and Rear View (Example) .....	7
4.2. Industrial Design specification.....	9

# 1. Overview

DIRECTV C61-500 is HD Satellite Receiver GENIE Mini client box.

## 1.1. Product Summary

Product Name	C61-500			Product Category	STB, Client
Product Code	91-00814			EAN code	
Target Market	US				
Customer	DirecTV / AT&T				
Business type	<input checked="" type="checkbox"/> Finished Goods <input type="checkbox"/> SKD <input type="checkbox"/> CKD				
Product Type	<input type="checkbox"/> Zapper <input type="checkbox"/> PVR <input checked="" type="checkbox"/> IP STB				
HD / SD	<input checked="" type="checkbox"/> HD <input type="checkbox"/> SD				
Front-end Type (복수 선택 가능)	<input type="checkbox"/> Satellite <input type="checkbox"/> Cable <input type="checkbox"/> Terrestrial <input checked="" type="checkbox"/> IP				
Middle ware	<input type="checkbox"/> HUMAX-OCTO <input type="checkbox"/> HUMAX-NEO <input type="checkbox"/> MHEG <input type="checkbox"/> MHP <input type="checkbox"/> NDS <input type="checkbox"/> OpenTV <input checked="" type="checkbox"/> (JetHead MW)				
Embedded CAS	<input type="checkbox"/> NDS <input type="checkbox"/> Irdeto <input type="checkbox"/> Viaccess <input type="checkbox"/> Nagra <input type="checkbox"/> CONAX <input type="checkbox"/> CryptoWorks <input type="checkbox"/> (N/A)				
DRM	<input type="checkbox"/> MS-DRM <input type="checkbox"/> Verimatrix <input type="checkbox"/> Cloakware <input type="checkbox"/> ( )				
Digital Broadcasting Standard (복수 선택 가능)	<input type="checkbox"/> DVB-S <input type="checkbox"/> DVB-S2 <input type="checkbox"/> DVB-T <input type="checkbox"/> DVB-T2 <input type="checkbox"/> DVB-C <input type="checkbox"/> DVB-C2 <input type="checkbox"/> ARIB <input type="checkbox"/> ATSC <input type="checkbox"/> (ISDB-T)				

<b>MPEG standard</b>	<input checked="" type="checkbox"/> MPEG2 <input type="checkbox"/> MPEG4
<b>Plant for PCBA</b>	<input type="checkbox"/> KOREA <input type="checkbox"/> Hungary <input type="checkbox"/> Poland <input checked="" type="checkbox"/> China <input type="checkbox"/> (Brazil)
<b>Plant for FG</b>	<input type="checkbox"/> KOREA <input type="checkbox"/> Hungary <input type="checkbox"/> Poland <input checked="" type="checkbox"/> China <input type="checkbox"/> (Brazil)
<b>Special function</b>	<b>MoCA 2.0 Client</b>

## 2. H/W specification

### 2.1. General Specification

Items	Description	Remark
<b>System</b>		
CPU	BCM73649	
NOR Flash	MX25L6456EXCI-10G	8MB SNOR
NAND Flash	JS27HU1G08SCDA-25	128MB NAND
DRAM	H5TQ4G63EFR-TEC	DDR3-2133, 512MB
<b>Front End</b>		
<b>MoCA</b>		
Input frequency range	400Mhz ~ 700Mhz	MoCA2.0
Input impedance	75 ohm	
TX signal level	Between -1dBm and +7dBm	
RX sensitivty	Min. PHY Rate = 95.62 Mbps in conditions of RX power level -63 dBm	
Modulation	OFDM	
<b>Video/Audio Processing</b>		
Video Decoding	MPEG-2 part 2 (ISO/IEC 13818-2) Main Profile @ Main Level MPEG-4, part 10 (AVC) Main and High profile Level 4.0	
Audio Decoding	MPEG-1 Part 3 (Layer II, AC-3) MPEG-4 Part 3 (HE-AAC), and ATSC A/52A [3, 5, and 12] (Dolby Digital) AAC+ (AAC-SBR)	
Output Resolution	1920x1080p(30/24), 1920x1080i, 1280x720p, 720x480p, 720x480i	
Audio Mode	Single/Dual Mono/Stereo/Joint Stereo	
<b>Conditional Access Interface &amp; DRM</b>		
CAS	N/A	
DRM	N/A	
CI+	N/A	
HW Security	N/A	No CAS
<b>I/O Specification</b>		
Mini-DIN	Mini-DIN Output Connector (10-pin mini-DIN connector)	
HDMI Out	A type connector(x1)	
S/PDIF Out	S/PDIF Output Connector	
USB	USB 2.0 Port (Type "A" connector)	

Items	Description	Remark
<b>Power Supply</b>		
Power Type	EPS10R3-16	EPS10R3-16
Power Consumption (Operation mode)	5.26W	
Power Consumption (Standby mode)	4.15W	
Input Voltage	120V +/- 15%, 60Hz	
Power Indicator	Yes(Green LED)	
Power Switch	N/A	
Protection	Separate internal fuse & lightning protection	
Max Load for USB1	500mA	
<b>Physical Specification</b>		
Size (W x H x D)	150 x 93 x 26mm(W x D x H)	
Weight	251.5g	
<b>Front Panel</b>		
LED display	1x Power indicator(Blue) / 1x Network status(Yellow/Green)	
Control Buttons	1x Power key/ 1 x RBR key(side)	
RCU Sensor	1x IR IN/1 x RF4CE	
<b>Rear Panel</b>		
SWiM IN	F type connector(x1)	
Mini-DIN	10-pin mini-DIN connector(dedicated to DirecTV)(x1)	
HDMI Out	A type connector(x1)	
S/PDIF Out	Coaxial connector(x1)	
USB	A type 2.0 connector(x1)	
Power	DC Jack connector(x1) with LED	

## 2.2. Regulation & Certification

Regulation	Remark
US	EMI : FCC / Class B Digital Device Safety : UL
License/Royalty	Remark
Dolby Digital	Yes
Dolby Digital Plus	No
Macrovision (Rovi)	No
CGMS-A	No
HDMI/HDCP	Yes
Certification	Remark
Energy Star	EPA for Certification
MoCA	NTS Mid-MoCA
RF4CE	Zigbee

### 3. S/W specification

The Client interoperates with the DIRECTV Home Media Servers such as HR34 and HR44 which are, in the same way, an RVU Protocol Specification compliant server with extensions and refinements specific to DIRECTV.

The client extensions and refinements are designed to ensure that DIRECTV users experience familiar and intuitive operation of the client within the Home Media Server environment. The Clients display live and recorded TV, interactive applications, DIRECTV Cinema and Broadband applications content on a local TV. All tuning, recording, and most user interface screens displayed on the client's local TV are generated on the Home Media Server using the RVU Remote User Interface (RUI) sub-protocol.

User interface screens generated and displayed locally by the clients include capabilities provided locally by most consumer electronic devices such as, setup for closed captioning, video formats, remote control, graphics preferences and client specific setup screens where applicable. User interface screens and OSDs generated locally by the client use the RVU Local User Interface (LUI) sub-protocol.

More specific requirements are in

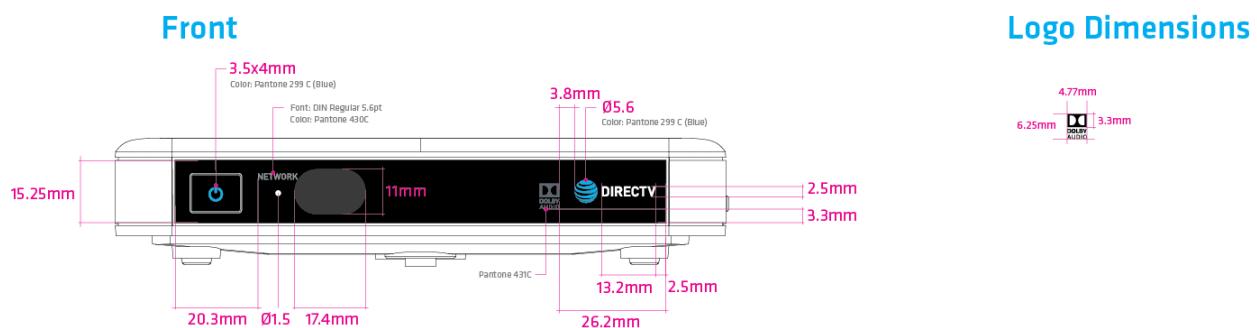
[http://depa.humaxdigital.com/pjt\\_directv/DIRECTV%20Spec/SW/RVU\\_Client/SPS-7002\\_DIRECTV\\_RVU\\_Client\\_Software\\_Requirements/SPS-7002\\_DIRECTV\\_RVU\\_Client\\_Software\\_Requirements\\_v1.8.2.doc](http://depa.humaxdigital.com/pjt_directv/DIRECTV%20Spec/SW/RVU_Client/SPS-7002_DIRECTV_RVU_Client_Software_Requirements/SPS-7002_DIRECTV_RVU_Client_Software_Requirements_v1.8.2.doc)

## 4. Industrial Design and Mechanical

### 4.1. Design Overview

#### 4.1.1. Front and Rear View (Example)

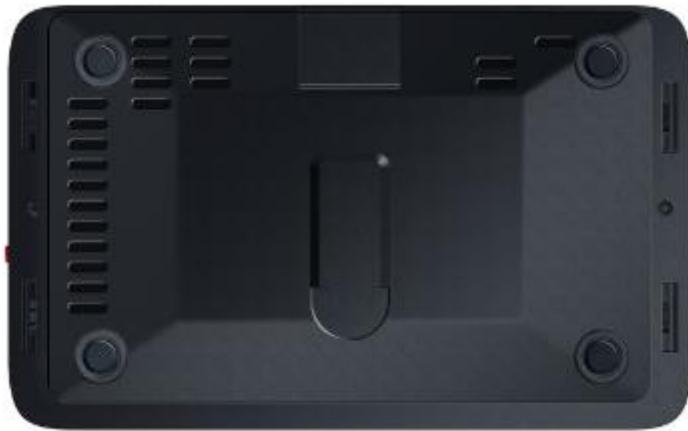
[Front Panel Layout]



[Rear Panel Layout]



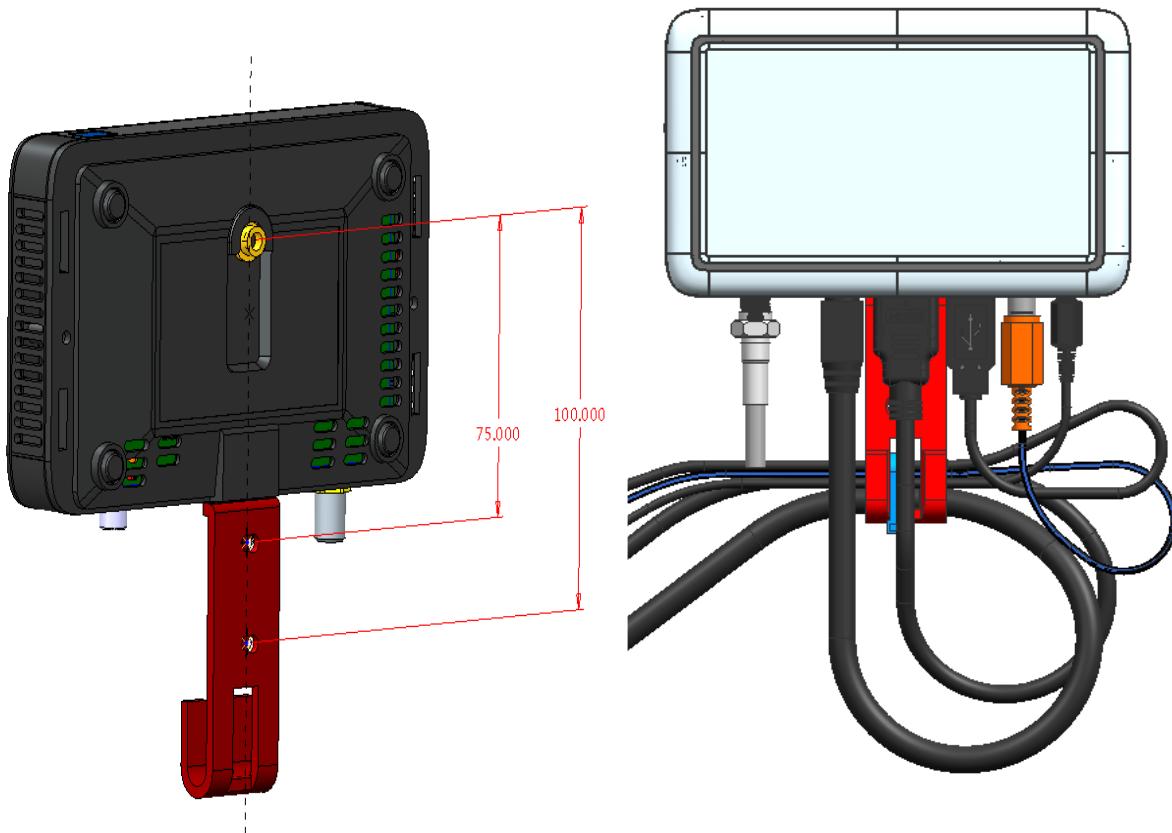
[Bottom Layout]



[Top/Side Layout]



[Wall mount view]



## 4.2. Industrial Design specification

Items	Specification	
Product size	<b>W150 x H26 x D93 (mm)</b>	
Color	Matte Black	
Door	N/A	
Key	1 Power Key/ 1 RBR Key(Side)	
CI slot	N/A	
Smartcard slot	N/A	
Material	Front	Plastic (O), Metal ( )
	Top	Plastic (O), Metal ( )
	Bottom	Plastic (O), Metal ( )
LED	1x Power status(Blue)/ 1x Network status(Yellow/Green)	

7-SEG	N/A	
LCD	N/A	
VFD	N/A	
USB	1x A type Connector	
Logo	Front	Dolby Audio /Energy Star / AT&T / DIRECTV
	Rear	HDMI/USB
	TOP	N/A
Label	Front	
	Bottom	

#### RF Information

- Modulation technique: DSSS\_O-QPSK
- Antenna specification: PCB Antenna
- Antenna gain: 2.9dBi(ANT 1), 2.6dBi(ANT 2)
- Frequency range: 2 425MHz~2 475MHz

## 6. FEDERAL COMMUNICATIONS COMMISSION INTERFERENCE STATEMENT

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:



- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Federal Communications Commission (FCC): This equipment complies with Part 15 of the FCC Rules. This equipment has been tested and found to comply with the limits of a Class B digital device, pursuant to Part 15 of the FCC Rules.

### Do Not Disassemble This Equipment

It does not contain any user-serviceable components. We recommend the installation of an AC surge arrester in the AC outlet to which this equipment is connected. Telephone companies report that electrical surges, typically lightning transients, are very destructive to customer terminal equipment connected to AC power sources.

### FCC RF Radiation Exposure Statement

MPE/SAR/RF Exposure Information. This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment was verified for RF exposure and found to comply with Council Recommendation 1999/519/EC and FCC OET-65 RF exposure requirements.

### CAUTION—Additional Safety Instructions

**WARNING:** While this equipment is in operation, a separation distance of at least 20 centimeters (equal to 8 inches) must be maintained between the antenna inside the equipment and the bodies of all persons exposed to the antenna in order to meet the FCC RF exposure guidelines. Making changes to the antenna or the equipment is not permitted. Doing so may result in the equipment exceeding the FCC RF exposure guidelines. This equipment must not be co-located or operated in conjunction with any other antenna or radio transmitter.

### FCC Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

**NOTE:** 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 radiate 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 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 into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/ TV technician for help.

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