



Document Type : **PRODUCT FUNCTIONAL SPECIFICATION**  
Document Name: Product Functional Specification – Set top box  
Filename : ADB-1750WM

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## RF exposure warning

This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provide with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

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## 1.0 INTRODUCTION

This Product Functional Specification defines all known and relevant functional specifications related to new ADB-1750WM Platform Product. Additional specifications or requirements may be added in subsequent revisions should it become obvious from interactive discussions between ADB and the ODM partner that such additions may be needed (for clarity, for compliance).

The ODM partner shall guarantee full compliance to each requirement and shall provide relevant details (where applicable) as to how the proposed solution will satisfy the requirement.

All answers, comments, any relevant information, or assumptions shall be provided as well as the completion of the spreadsheet table included in RFQ documentation package.

Within this document, the following formal terms are used to indicate the nature of the particular requirement:

- A **“Requirement“**, abbreviated **“R”** - indicates a mandatory requirement, a requirement that must be supported. The ODM partner shall indicate full, partial, or not compliant, and in the case of partial or not compliant, shall also provide supplementary explanations.
- An **“Option“**, abbreviated **“O”** - indicates a requirement that may be supported optionally. Any optional requirement shall be quoted separately (as indicated in the costing matrix provided in the RFQ package). Obviously, supporting optional requirements positively influences the assessment of the reply to the RFQ package.
- An **“Information“**, abbreviated **“I”** - indicates additional information that ADB is requesting for the purpose of gaining a deeper understanding of the proposed solution. The ODM partner shall provide the required information within its reply to the RFQ package and is encouraged to provide additional documentation, drawings, or other such materials as may be needed to enrich the answer.

Additionally it has to be understood that ADB-1750WM Platform is a Platform. This means that it is expected that a number of products will be spawned from the same design by leveraging the modular design to configure products specific to the needs of specific customers without re-designing the product. Those mutually exclusive products differences are marked as ‘Variant’.

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## 2.0 HARDWARE ARCHITECTURE REQUIREMENTS

Table 1: Platform System Architecture

R [1]	Core SoC	The ADB-1750WM Platform must be designed to accommodate the BCM7428 SoC.
R [2]	Random Access Memory	The ADB-1750WM Platform shall be designed to support DDR3 1866MHz memory. <ul style="list-style-type: none"><li>• <b>Variant01:</b> Memory size is 1Gbyte - default,</li><li>• <b>Variant02:</b> Memory size is 512Mbyte.</li></ul>
R [3]	NAND Flash	The ADB-1750WM Platform shall be designed to support NAND Flash memory in a BGA package. <ul style="list-style-type: none"><li>• <b>Variant01:</b> Memory size is 512Mbyte - default,</li><li>• <b>Variant02:</b> Memory size is 256Mbyte.</li></ul>
R [4]	Flash content integrity	The ADB-1750WM Platform shall include a protection mechanism to avoid Flash corruption due to power spikes, power loss or brownout conditions.
R [5]	Local Storage	The ADB-1750WM Platform shall have a standard-form factor, high-speed SDHC card slot.
R [6]	Broadcast Environment	The ADB-1750WM Platform shall have a MoCA 2.0 (MoCA-M/P SPEC-V2.0-20120405) compliant interface. The device shall bridge all MoCA and Ethernet traffic over home network interfaces.
R [7]	Remote Control	The ADB-1750WM Platform shall support IR Protocols compliant with the Cisco and Motorola implementation; see R [111] and R [112].
R [8]	Remote Control	The ADB-1750WM Platform shall include an RF4CE transceiver.
R [9]	Power Supply	An external power supply unit shall power the ECHO DLNA-Client Platform.
R [10]	Fan	The ADB-1750WM Platform shall not be equipped with any type of fan.

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Table 2: Rear Panel Requirements

R [11]	Base-band Audio Video	The ADB-1750WM Platform shall include base-band audio/video connectors. <ul style="list-style-type: none"><li>• Variant01: No base-band audio video connectors - default</li><li>• Variant02: left and right audio outputs on RCA and SCART audio-video connectors present.</li></ul>
R [12]	HDMI	The ADB-1750WM Platform shall have an HDMI 1.4a compliant port.
R [13]	S/PDIF	The ADB-1750WM Platform shall include an optical S/PDIF audio output port compliant to IEC 60958 -1.
R [14]	USB	The ADB-1750WM Platform shall include a single USB 2.0 port compliant to Universal Serial Bus Revision 2.0 Specification available on the <a href="http://www.usb.org">http://www.usb.org</a> website.
R [15]	2 <sup>nd</sup> USB	The ADB-1750WM Platform shall include a second USB 2.0 port on the side of the enclosure. <ul style="list-style-type: none"><li>• Variant01: No 2<sup>nd</sup> USB connector - default,</li><li>• Variant02: 2<sup>nd</sup> USB connector present.</li></ul>
R [16]	Ethernet	The ADB-1750WM Platform shall include an RJ-45 port <ul style="list-style-type: none"><li>• Variant01: 10/100BASE-TX Ethernet compliant with IEEE 802.3- 2008 - default,</li><li>• Variant02: 1000BASE-T Ethernet port compliant with IEEE802.3 -2008. The Gigabit Ethernet port shall be backwards compatible with 10/100BASE-TX Ethernet specifications.</li></ul>
R [17]	F-Connector	The ADB-1750WM Platform shall include an F-Connector for MoCA signal input and output.
R [18]	Remodulator	The ADB-1750WM Platform shall include a Channel 3/4 RF remodulating on F-Connector. <ul style="list-style-type: none"><li>• Variant01: RF remodulator present - default,</li><li>• Variant02: No RF remodulator.</li></ul>
R [19]	SDHC slot	The ADB-1750WM Platform shall have an SDHC card slot as defined in R [5] and Table 18. Electrical interface shall be compliant with: SD Specifications Part 1 Physical Layer Specification Version 3.01 May 18, 2010
R [20]	Power Jack	The ADB-1750WM Platform shall include a jack as power supply receptacle described later in R [124].
R [21]	Other connectors	The ADB-1750WM Platform shall not include other connectors or interfaces not mentioned in Table 2.



Table 3: Front Panel Requirements

R [22]	LED indicators	The ADB-1750WM Platform shall include two dual colour (Red/Green) LED indicators located on front panel and controlled by software.
R [23]	LED indicators	One LED shall be labelled Power/Standby and light green in Full Power Mode. Red light is active in Standby Mode.
R [24]	LED indicators	One LED shall be labelled “Network” and light green while MoCA link active.
R [25]	Power Button	The ADB-1750WM Platform shall implement one power button on the front panel. Its function shall be ‘Standby’. This button shall be a mechanical, momentary switch. The requirements for
R [26]	Other	The ADB-1750WM Platform shall not include any other devices or indicators not specified in Table 3.

Table 4: Requirements for Conditional Access, Digital Rights Management and Copy Protection.

R [27]	CA Design Rules	<p>The printed circuit board shall be designed in such a manner that it will ensure compliance with all the most recent requirements of the CA vendors listed below:</p> <ul style="list-style-type: none"><li>• PlayReady</li><li>• Marlin</li><li>• SecureMedia</li></ul> <p>The ODM partner will shall guarantee compliance to all of the above CA vendors.</p>
R [28]	Macrovision Copy Protection	The ADB-1750WM Platform design shall support Macrovision/Rovi copy protection on RF Re-modulator video output.
R [29]	HDCP DRM	Content transmitted over the HDMI interface shall be protected with HDCP Specification Rev 1.4 (July, 2009).

Table 5: Power Consumption Requirements

R [30]	Power Consumption Control	<p>The ADB-1750WM Platform shall support the following power states fully managed by software:</p> <ul style="list-style-type: none"><li>• Full Power</li><li>• Standby</li><li>• Off</li></ul>
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R [31]	Power Up	The ADB-1750WM Platform shall power up in standby mode.
R [32]	Standby Mode	The ADB-1750WM Platform shall enter Standby mode upon user input (power button or remote control unit) or command received over its Ethernet and MoCA ports.
R [33]	Standby Mode	The ADB-1750WM Platform shall disable all video and audio outputs in Standby Mode.
R [34]	Standby Mode	The ADB-1750WM Platform shall power down all non-volatile local storage in Standby Mode.
R [35]	Standby Mode	The ADB-1750WM Platform shall enter Full Power Mode upon user input (power button or remote control unit) or command received over its Ethernet and MoCA ports while in Standby Mode.
R [36]	Standby Mode	The functionalities sustained in Standby Mode are: <ul style="list-style-type: none"><li>• Red LED indicator</li><li>• MoCA</li><li>• Ethernet</li><li>• Power button</li><li>• IR receivers and RF4CE</li></ul>
R [37]	Off Mode	The ADB-1750WM Platform shall not operate any features in Off Mode.

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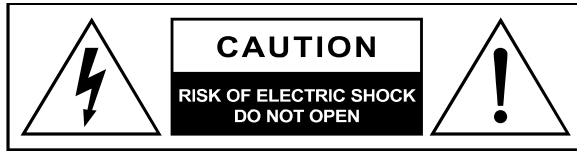
# Safety First

## WARNING

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

## CAUTION

TO PREVENT ELECTRICAL SHOCK, NEVER USE THIS PLUG WITH AN EXTENSION CORD, RECEPTACLE, OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED AND NOT EXPOSED.



To prevent electrical shock, do not disassemble. No serviceable parts inside, refer servicing to qualified service personnel. This unit is for indoor use only.



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.

This digital decoder has been manufactured to meet international safety standards. However, safety precautions must be followed to ensure the safe and reliable operation of the decoder. Please take note of the following guidelines.

## REPAIRS

If the unit needs repair, contact your operator for repair or replacement.

## NOTE TO CATV SYSTEM INSTALLER

This reminder is provided to call the CATV System Installer's attention to Article 820-93 of the NEC that gives guidelines for grounding. NEC Article 820-93 specifies that the cable ground shall be connected to the grounding system of the building at a point closest to the cable entry as practical.

## IMPORTANT SAFETY INSTRUCTIONS

- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 11) Only use attachments/accessories specified by the manufacturer.
- 12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- 13) Unplug this apparatus during lightning storms or when unused for long periods of time.
- 14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

## ADDITIONAL SAFETY INSTRUCTIONS

- 15) Power sources  
This decoder operates with an external power indicated on the marking label. Use a standard AC wall outlet; a DC power source cannot be used. Remember that contact with a 110-240 Volt AC power supply can be lethal.
- 16) Overloading  
Do not overload wall outlets and extension cords as this can result in a risk of fire or electrical shock.
- 17) Objects and liquid  
Do not push objects of any kind into the decoder through any openings as it may cause a short circuit and damage the decoder or even cause fire. Do not spill any liquid on the decoder. Be extremely careful if this unit comes into contact with water. Immediately disconnect the power supply if possible.

### 18) Servicing

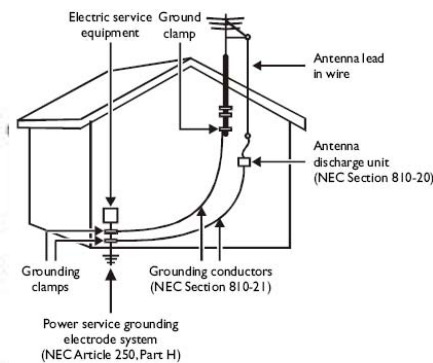
Never attempt to repair or reconstruct the decoder yourself. A serious electric shock may occur if this decoder is repaired, disassembled or reconstructed by an unauthorized person. Refer all servicing to qualified service personnel.

### 19) Safety check

Upon completion of any service or repairs to this decoder, ask the service technician to perform safety checks to determine that the decoder is in proper operational condition.

### 20) Outdoor Antenna Grounding

If an outside antenna or cable system is connected to the decoder, be sure the antenna or cable system is grounded. Article 810 of the National Electric Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure and others. See figure below.



<sup>1</sup> NEC=NATIONAL ELECTRICAL CODE

### 21) Servicing

Never attempt to repair or reconstruct the decoder yourself. A serious electric shock may occur if this decoder is repaired, disassembled or reconstructed

by an unauthorized person. Refer all servicing to qualified service personnel.

### 22) Replacement parts

When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or ones that have the same characteristics as the original ones. Unauthorized substitutions may result in fire, electric shock, or other hazards.

### 23) Battery usage

Notwithstanding any information provided by the manufacturer in this manual regarding the use of batteries, the end user assumes all responsibility and liability to use and dispose of batteries in accordance with all applicable laws, rules and regulations. The manufacturer will not be liable to anyone for the end user's failure to use and/or dispose of batteries in the proper manner and in accordance with such laws, rules and regulations, or for any defect contained in batteries, which may cause injury damage to persons or property.

## Regulatory Information

This device 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 or television reception. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio and 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 decoder
- Connect the equipment into an outlet on a circuit different from that to which the decoder is connected
- Consult the dealer or an experienced radio/TV technician for help
- Changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.



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