LIGHTWARE
INNOVATIVE. RELIABLE. MADE IN EUROPE.

Lightware Lab summary of Yealink MVC400 & Yealink MVC860 validation

TABLE OF CONTENTS

Version	Comment	Date
1.0	Initial version	13rd of March 2024

1. Introduction

The Yealink MVC400 and the Yealink MVC860 are Microsoft Teams Rooms (MTR) bundles. The Yealink MVC400 bundle contains

- UVC40 USB Video Bar,
- MCore Mini-PC (with 2 HDMI output),
- MTouch II Touch Panel (with HDMI/USB-C video input).

The Yealink MVC860 bundle contains

- UVC86 USB PTZ Camera,
- MCore Mini-PC (with 2 HDMI output),
- MTouch II Touch Panel (with HDMI/USB-C video input).

The Lightware Taurus UCX and Taurus TPX expands the functionality of the Yealink USB peripherals, enabling BYOD mode for up to multiple clients, while also providing charging and network for them.

Our customers need confirmation that the Taurus UCX and Taurus TPX interoperability with Yealink MVC400 (UVC40) and Yealink MVC860 (UVC86) has been tested, validated, and recommended by Lightware.

1.1. Test Cases

For testing, a videocall was initiated by Zoom and MS Teams software clients running on own laptops described below. We also investigated content sharing through Taurus UCX and Taurus TPX in an Yealink MTRoW (MCore Mini PC, MTouch II Touch Panel) setup.

During calls, we tested the quality and reliability of the audio/video and shared content that was seen and heard on the call, and we tested the video and audio seen on the display. In addition to the above, the laptops were dis- and reconnected ten times to check the video/USB auto switching feature of Taurus UCX and Taurus TPX.

Taurus UCX and Taurus TPX were set to the default settings, auto-select on the input ports, using last-detect, and we used manual input selection, when it was needed.

We also set the HDCP enable to off on the inputs of the Taurus UCX and Taurus TPX.

We distinguish the following test results:

- **Passed** – The peripheral (camera, speaker and microphone) signal is reliable, and redirection of the peripheral signal works by the video/USB auto switching.
- **Failed** – The peripheral signal is unstable or not presented at all.
- **Not tested** - The test case cannot be interpreted in the given configuration, e.g. due to lack of HDMI port.

1.2. Test Environment

Unit	Type	FW/OS version
Peripheral	Yealink UVC40 Yealink UVC86	FW: 128.423.0.60 FW: 151.432.0.5
HDMI/USB matrix switcher	Lightware UCX-4x2-HC40 Lightware UCX-4x3-TPX-TX20	v2.7.1b1 v1.7.0b6
HDMI extender (if applicable)	Lightware HDMI-UCX-TPX-RX107	
USB extender (if applicable)	Lightware HDMI-UCX-TPX-RX107	
Display	Samsung QB50B	1090.2
Teams Rooms PC	MCore Mini-PC Microsoft Teams Rooms Yealink RoomConnect	Win11 IoT Enterprise Build 22621 4.19.82.0 2.32.59.0
Touch	MTouch II touch panel	FW: 282.432.0.5
Laptop 1	Lenovo T14 Gen3	Win10 Pro, Build:19045
Laptop 2	Dell Latitude 5430	Win10 Pro, Build:19045
Laptop 3	MacBook Air 2020 M1	macOS Sonoma, 14.3.1
Laptop 4	HP ProBook 440	Win10 Pro, Build:19045

1.3. Tested Cables

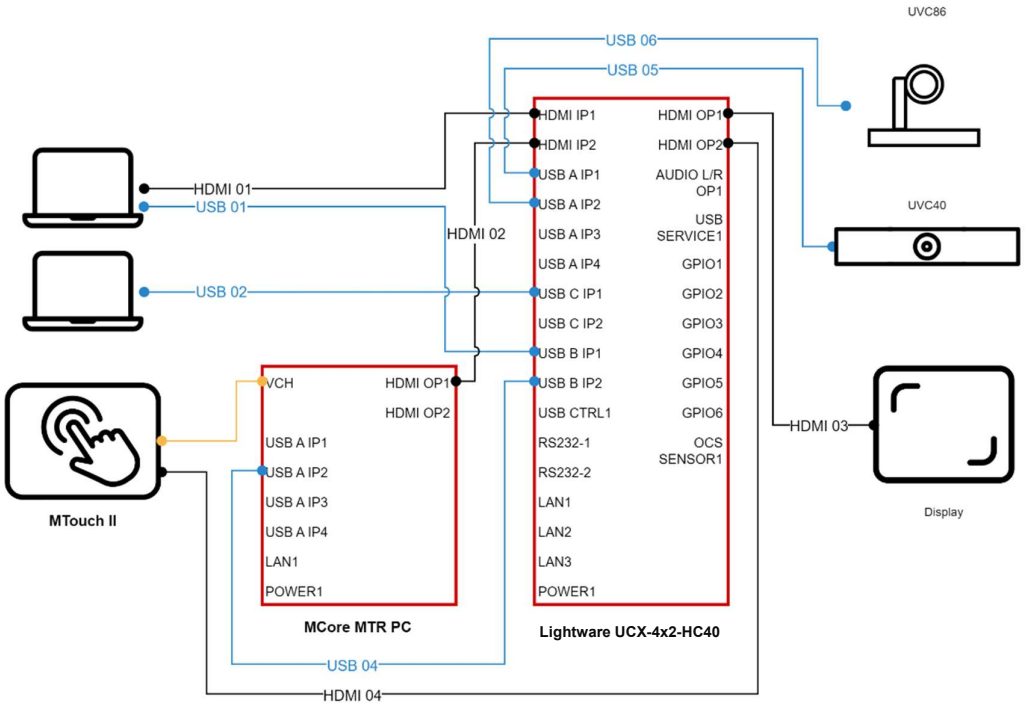
Unit	Type
Lightware CAB-USBC-T100A	1m Type C – Type C
Lightware CAB-USBC-T200A	2m Type C – Type C
Lightware CAB-USBC-T300A	3m Type C – Type C
Lightware CAB-USBC-T400B	4m Type C – Type C
Lightware CAB-USBC-T500B	5m Type C – Type C
Lightware CAB-USBC-AOC800K	8m Type C – Type C
Lightware CAB-USBC-AOC1000K	10m Type C – Type C
Unitek AWM2725 2m	2m Type A – Type B
Unitek AWM2725 5m	5m Type A – Type B

2. Scenario 1 – One Taurus UCX

2.1. Overview

The first test scenario contains one Taurus UCX and Yealink UVC40 and Yealink UVC86 in a Yealink MTRoW setup.

2.2. Wiring



2.3. Cable numbering

Nr	Type
USB 01 & 04	*See tested cable list – USB Type A-B*
USB 02	*See tested cable list – USB Type C-C*
USB 05 & 06	Unitec USB A-B 2m / 5m
HDMI 01 & 02	Lightware CAB-HDMI20-PHS200F
HDMI 03	Lightware CAB-HDMI20-PHS500P

2.4. Results

Platform:	MTR - Yealink Mcore Mini-PC	
USB 04:	Unitec USB A-B 2m	Unitec USB A-B 5m
Test results:	Passed	Passed

Platform:	BYOD – Lenovo Thinkpad T14 Gen3						
USB 01:	CAB-USBC-T100A	CAB-USBC-T200A	CAB-USBC-T300A	CAB-USBC-T400B	CAB-USBC-T500B	CAB-USBC-AOC800K	CAB-USBC-AOC1000K
UVC40	Passed	Passed	Passed	Passed	Passed	Passed	Passed
UVC86	Passed	Passed	Passed	Passed	Passed	Passed	Passed

Platform:	BYOD – Lenovo Dell Latitude 5430						
USB 01:	CAB-USBC-T100A	CAB-USBC-T200A	CAB-USBC-T300A	CAB-USBC-T400B	CAB-USBC-T500B	CAB-USBC-AOC800K	CAB-USBC-AOC1000K
UVC40	Passed	Passed	Passed	Passed	Passed	Passed	Passed
UVC86	Passed	Passed	Passed	Passed	Passed	Passed	Passed

Platform:	BYOD – Apple MacBook Air 2020 M1						
USB 01:	CAB-USBC-T100A	CAB-USBC-T200A	CAB-USBC-T300A	CAB-USBC-T400B	CAB-USBC-T500B	CAB-USBC-AOC800K	CAB-USBC-AOC1000K
UVC40	Passed	Passed	Passed	Passed	Passed	Failed (to much tiers)	Failed (to much tiers)
UVC86	Passed	Passed	Passed	Passed	Passed	Passed	Passed

Platform:	BYOD – HP ProBook 440						
USB 01:	CAB-USBC-T100A	CAB-USBC-T200A	CAB-USBC-T300A	CAB-USBC-T400B	CAB-USBC-T500B	CAB-USBC-AOC800K	CAB-USBC-AOC1000K
UVC40	Passed	Passed	Passed	Passed	Passed	Passed	Passed
UVC86	Passed	Passed	Passed	Passed	Passed	Passed	Passed

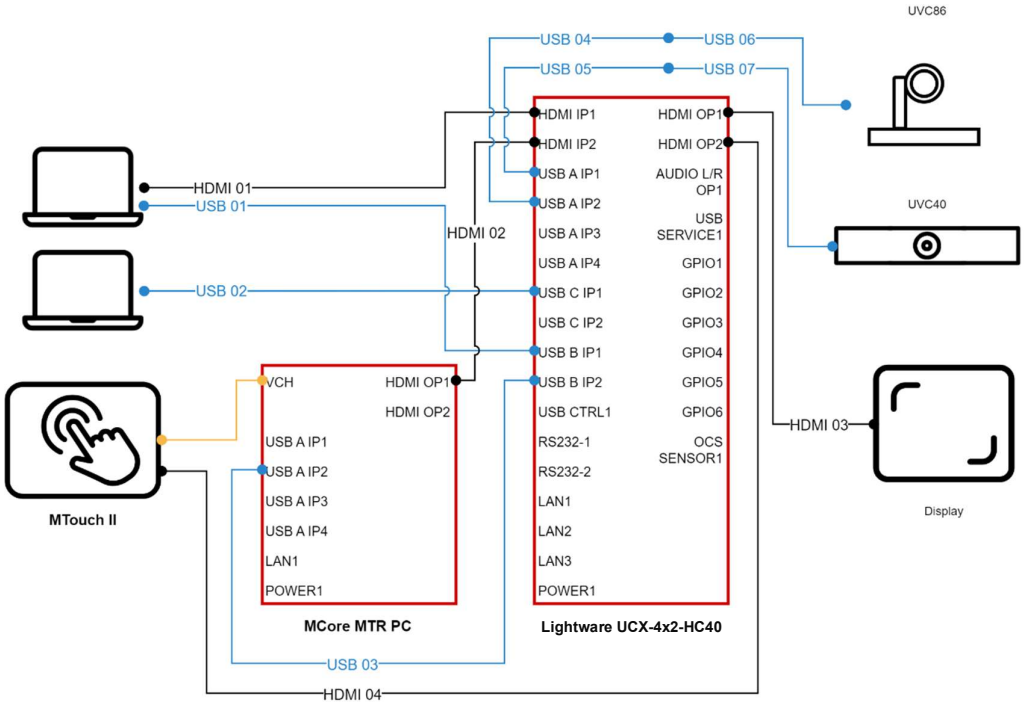
3. Scenario 2 – One Taurus UCX with extension cables

3.1. Overview

This test scenario contains one Taurus UCX and Yelaink UVC40 and UVC86, both connected by using **10m or 16m long USB 3.1 Gen1 SuperSpeed Active Extension Cable** from Lightware. This setup is usually preferred for smaller and medium rooms, where (because of the conduit layout) the peripheral needs a longer wire than the USB cable supports. In this setup the UCX (and optionally the RoomPC) is placed under the table.

3.2. Wiring

For clarity, only USB/HDMI connections are shown.



3.3. Cable numbering

Nr	Type
USB 01 & 03	*See tested cable list – USB Type A-B*
USB 02	*See tested cable list – USB Type C-C*
USB 04 & 06	Unitec USB A-B 5m
USB 05 & 07	Lightware CAB-USB-AMAF-T1000A / T1600A
HDMI 01 & 02	Lightware CAB-HDMI20-PHS200F
HDMI 03	Lightware CAB-HDMI20-PHS500P

3.4. Results

Platform:	**MTR - Yealink Mcore Mini-PC**

USB 04:	Unitec USB A-B 2m	Unitec USB A-B 5m
Test results:	Passed	Passed

Platform:	**BYOD – Lenovo Thinkpad T14 Gen3**						
USB 01:	CAB-USBC-T100A	CAB-USBC-T200A	CAB-USBC-T300A	CAB-USBC-T400B	CAB-USBC-T500B	CAB-USBC-AOC800K	CAB-USBC-AOC1000K
UVC40	Passed	Passed	Passed	Passed	Passed	Failed	Failed
UVC86	Passed	Passed	Passed	Passed	Passed	Passed	Passed

Platform:	**BYOD – Lenovo Dell Latitude 5430**						
USB 01:	CAB-USBC-T100A	CAB-USBC-T200A	CAB-USBC-T300A	CAB-USBC-T400B	CAB-USBC-T500B	CAB-USBC-AOC800K	CAB-USBC-AOC1000K
UVC40	Passed	Passed	Passed	Passed	Passed	Failed	Failed
UVC86	Passed	Passed	Passed	Passed	Passed	Passed	Passed

Platform:	**BYOD – Apple MacBook Air 2020 M1**						
USB 01:	CAB-USBC-T100A	CAB-USBC-T200A	CAB-USBC-T300A	CAB-USBC-T400B	CAB-USBC-T500B	CAB-USBC-AOC800K	CAB-USBC-AOC1000K
UVC40	Passed	Passed	Passed	Passed	Passed	Failed	Failed
UVC86	Passed	Passed	Passed	Passed	Passed	Passed	Passed

Platform:	**BYOD – HP ProBook 440**						
USB 01:	CAB-USBC-T100A	CAB-USBC-T200A	CAB-USBC-T300A	CAB-USBC-T400B	CAB-USBC-T500B	CAB-USBC-AOC800K	CAB-USBC-AOC1000K
UVC40	Passed	Passed	Passed	Passed	Passed	Failed	Failed
UVC86	Passed	Passed	Passed	Passed	Passed	Passed	Passed

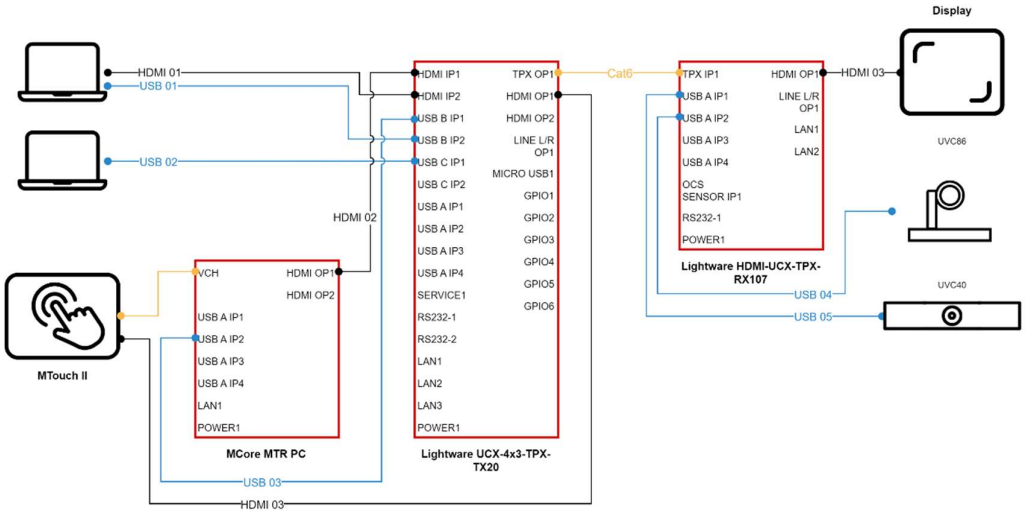
4. Scenario 3 –Taurus TPX bundle

4.1. Overview

The first test scenario contains one Taurus UCX and Yealink UVC40 and Yealink UVC86 in a Yealink MTRoW setup.

4.2. Wiring

The Taurus TPX is used in meeting room environments, where the distance between the table and the display is too long for USB and video transmission, and the room PC is located under the table. The Taurus UCX-4x3-TPX-TX20 can transmit video, USB, ethernet, and power up to 100m on a CAT6 cable. The HDMI-UCX-TPX-RX107 receiver device can be powered over the CAT6 cable. The system uses 10GbE SDVoE technology, in a point-to-point configuration. The receiver does not have any local inputs, so the room PC must be placed at the transmitter at his point. (A receiver unit is coming soon, with local inputs).



4.3. Cable numbering

Nr	Type
USB 01 & 03	*See tested cable list – USB Type A-B*
USB 02	*See tested cable list – USB Type C-C*
USB 04 & 05	Unitec USB A-B 5m
HDMI 01 & 02	Lightware CAB-HDMI20-PHS200F
HDMI 03	Lightware CAB-HDMI20-PHS500P
CAT6	Draka UC500 Screen 23 CATEGORY 6 U/FTP

4.4. Results

Platform:	MTR - Yealink Mcore Mini-PC	
USB 04:	Unitec USB A-B 2m	Unitec USB A-B 5m
Test results:	Passed	Passed

Platform:	BYOD – Lenovo Thinkpad T14 Gen3						
USB 01:	CAB-USBC-T100A	CAB-USBC-T200A	CAB-USBC-T300A	CAB-USBC-T400B	CAB-USBC-T500B	CAB-USBC-AOC800K	CAB-USBC-AOC1000K
UVC40	Passed	Passed	Passed	Passed	Passed	Not Tested	Not Tested
UVC86	Passed	Passed	Passed	Passed	Passed	Not Tested	Not Tested

Platform:	BYOD – Lenovo Dell Latitude 5430						
USB 01:	CAB-USBC-T100A	CAB-USBC-T200A	CAB-USBC-T300A	CAB-USBC-T400B	CAB-USBC-T500B	CAB-USBC-AOC800K	CAB-USBC-AOC1000K
UVC40	Passed	Passed	Passed	Passed	Passed	Not Tested	Not Tested
UVC86	Passed	Passed	Passed	Passed	Passed	Not Tested	Not Tested

Platform:	BYOD – Apple MacBook Air 2020 M1						
USB 01:	CAB-USBC-T100A	CAB-USBC-T200A	CAB-USBC-T300A	CAB-USBC-T400B	CAB-USBC-T500B	CAB-USBC-AOC800K	CAB-USBC-AOC1000K
UVC40	Passed	Passed	Passed	Passed	Passed	Not Tested	Not Tested
UVC86	Passed	Passed	Passed	Passed	Passed	Not Tested	Not Tested

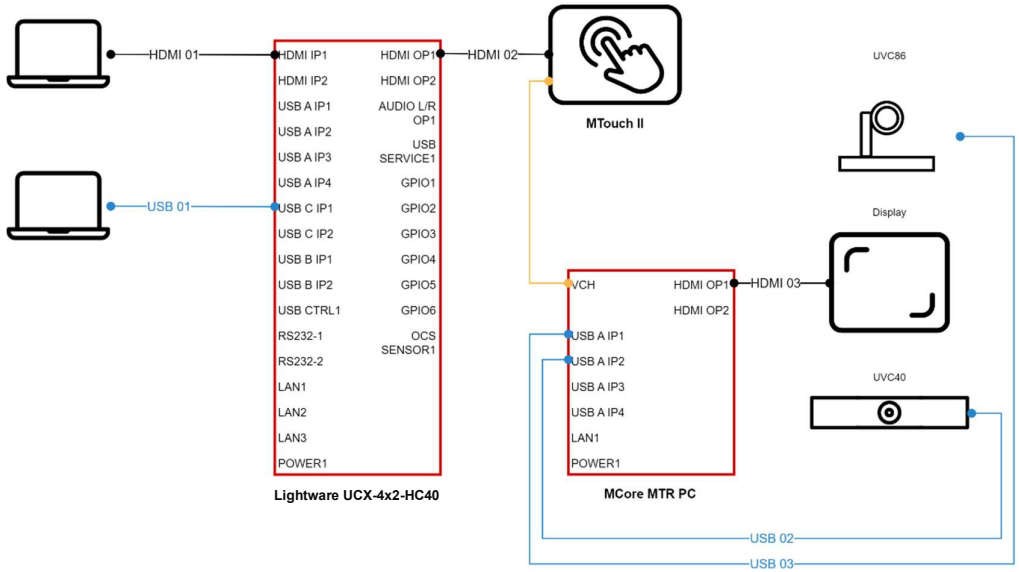
Platform:	BYOD – HP ProBook 440						
USB 01:	CAB-USBC-T100A	CAB-USBC-T200A	CAB-USBC-T300A	CAB-USBC-T400B	CAB-USBC-T500B	CAB-USBC-AOC800K	CAB-USBC-AOC1000K
UVC40	Passed	Passed	Passed	Passed	Passed	Not Tested	Not Tested
UVC86	Passed	Passed	Passed	Passed	Passed	Not Tested	Not Tested

5. Scenario 4 – Content Sharing

5.1. Overview

We also investigated content sharing through Taurus UCX and Taurus TPX in an MTRoW setup. This configuration contains a Taurus UCX or Taurus PTX bundle, a Yealink MCore Mini-PC (Teams Rooms PC), a Yealink MTouch II and both UVC40 and UVC86. The Taurus UCX HDMI output is routed to the USB-C input of Yealink MTouch II with an HDMI to USB-C adapter. By this way we shared content into the MS Teams videoconference.

5.2. Wiring



5.3. Cable numbering

Nr	Type
USB 01	*See tested cable list – USB Type C-C*
USB 02 & 03	Unitec USB A-B 5m
USB 05	Logitech 5m USB2.0 Type A-C
HDMI 01	Lightware CAB-HDMI20-PHS200F
HDMI 02 & 03	Lightware CAB-HDMI20-PHS500F

5.4. Results

Platform:	BYOD – Lenovo Thinkpad T14 Gen3						
USB 01:	CAB-USBC-T100A	CAB-USBC-T200A	CAB-USBC-T300A	CAB-USBC-T400B	CAB-USBC-T500B	CAB-USBC-AOC800K	CAB-USBC-AOC1000K
BYOD Shared Content	Passed	Passed	Passed	Passed	Passed	Passed	Passed

Platform:	BYOD – Lenovo Dell Latitude 5430						
USB 01:	CAB-USBC-T100A	CAB-USBC-T200A	CAB-USBC-T300A	CAB-USBC-T400B	CAB-USBC-T500B	CAB-USBC-AOC800K	CAB-USBC-AOC1000K
BYOD Shared Content	Passed	Passed	Passed	Passed	Passed	Passed	Passed

Platform:	BYOD – Apple MacBook Air 2020 M1						
USB 01:	CAB-USBC-T100A	CAB-USBC-T200A	CAB-USBC-T300A	CAB-USBC-T400B	CAB-USBC-T500B	CAB-USBC-AOC800K	CAB-USBC-AOC1000K
BYOD Shared Content	Passed	Passed	Passed	Passed	Passed	Passed	Passed

Platform:	BYOD – HP ProBook 440						
USB 01:	CAB-USBC-T100A	CAB-USBC-T200A	CAB-USBC-T300A	CAB-USBC-T400B	CAB-USBC-T500B	CAB-USBC-AOC800K	CAB-USBC-AOC1000K
BYOD Shared Content	Passed	Passed	Passed	Passed	Passed	Passed	Passed

6. Conclusion

During our tests, we recognized, that the length of the used Lightware CAB-USBC-xxx and CAB-HDMI20 cables itself does not affect the signal and connection quality as we expected. Either USB and Video signals were present, or they were not present at all. We did not find any states between.

However, in a system design the USB standard's specifications, and USB tree structure should be considered. The maximum layer count, or levels of the tree must not exceed 7. (Layer of the USB tree is also called tier.) As you can see in Scenario 1 and 2, the setup does not work properly due to too many tiers. This is also true for the extenders, that have multiple peripheral USB ports. In this regard, we need to mention MacBook computers, because they also have an additional layer in the USB structure, leading to quick consumption of the available USB tiers. Since the 8m, and 10m long USB-C cables are using active optical technology, it also adds to the tiers. It is important to note that UVC40 includes two tiers while the UVC86 has one tier.

We highly recommend to design the AV system taking into account the above considerations, and choose the peripherals, and extenders wisely. Counting the USB tiers, and designing the system consciously reduces the risk of an unstable system.

Our tests show that by using Taurus UCX and Taurus TPX, the functionality of the Yealink MVC400 (UVC40) and MVC860 (UVC86) can be expanded in a stable way to multiple clients, either in BYOD or MTRoW environments.