



# Technical specification

## Trulifi System 6002.1

Humidity	20 - 90% non-condensing
Storage temperature	-40 to +80 °C
Standards	IEC 62368-1, IEC 62471, IEC 60825-1, IEC 60825-12
Certification	CE / NRTL US Canada / FCC

## Trulifi Access Point 6002.1

Mains voltage	100-240 V, 50/60 Hz
System power	35 W (based on 6 transceivers connected)
Power factor	0.9
Average ambient temperature	25 °C
Operating temperature range	+10 to +40 °C
Network communication	Data link input connection RJ45 Cat. 5/5E/6 Ethernet cable (cable not included)
Multi-user capability	Up to 16 users per Access Point
Transmission mode	Half duplex
Encryption	End-to-End encryption based on AES-128
Standard	Designed for ITU-T G.9991

## Trulifi Transceiver 6002.1

Voltage	24 V DC provided by the Trulifi Access Point 6002.1
System power	5 W at 230 V AC (supplied by Trulifi Access Point 6002.1)
Downlink wireless optical communication support	Infrared
Average ambient temperature	25 °C
Operating temperature range	+10 to +40 °C
Network communication	Data link input connection RJ12 7m SFTP cable (cable included)
Multi-user capability	Up to 16 users per Access Point
Transmission mode	Half duplex
Encryption	End-to-End encryption based on AES-128
Standard	Designed for ITU-T G.9991

## Trulifi USB Key 6002.1

Voltage	5 V DC provided via USB 3.0
System power	3.5 W
Uplink wireless optical communication support	Infrared
Average ambient temperature	25 °C
Operating temperature range	+10 to +35 °C
Network communication	Data link input connection USB 3.0 Type-C (cable included)

## System Date rate

Net data rate	150 Mbit/s download 140 Mbit/s upload
	<p><i>Measurement conditions:</i></p> <ul style="list-style-type: none"> <li>• 1.2 m distance between USB Key and transceiver</li> <li>• USB Key located straight under transceiver (radius 0)</li> <li>• 6 transceivers connected</li> </ul>

The downlink and uplink data rates depend on the distance  $d$  between the transceiver and the USB key, as well as the radial distance, as depicted in Figure 2 and Figure 3.

## System operating distance and coverage area

Operating distance between USB Key and transceiver	1.2 m to 2.8 m	
Connectivity coverage area per transceiver	<i>Distance between USB key and transceiver:</i>	<i>Ø Radius:</i>
	1.2 m	0.65 m
	1.8 m	1.0 m
	2.8 m	1.5 m

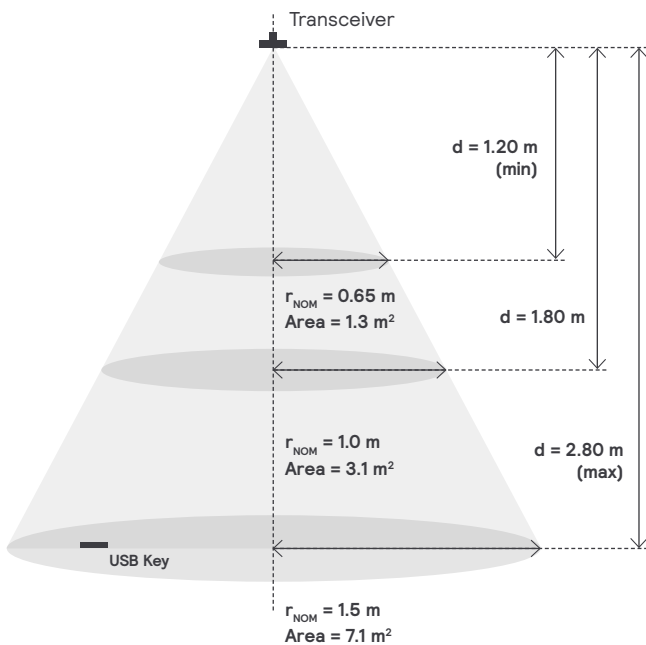


Figure 1: Coverage area

The LiFi coverage area of one transceiver is a circle of which the radius depends on the distance  $d$  between the transceiver and the USB key. Radial distance 0 represents the location directly under the transceiver. The recommended operational area spreads from 0 up to the nominal radial distance  $r_{NOM}$  as depicted in Figure 1.

## Trulifi 6002.1 system - Downlink date rate

6 Transceivers connected to Access Point

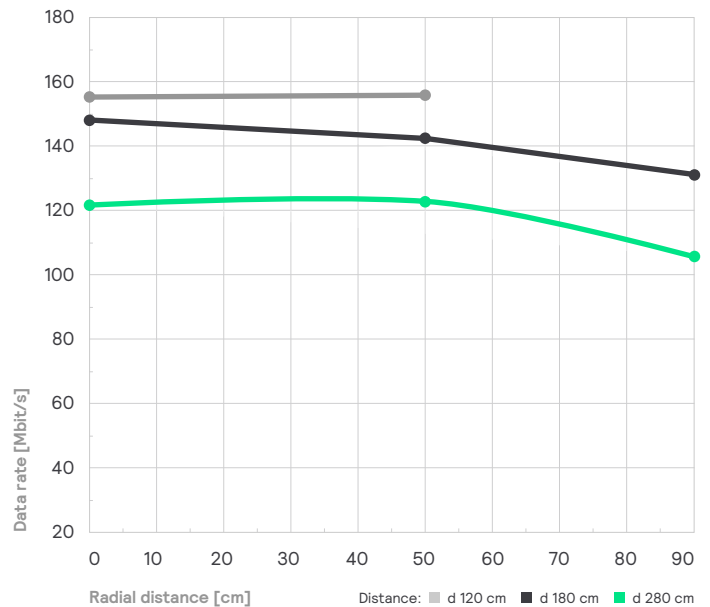


Figure 3: Downlink data rate

## Trulifi 6002.1 system - Uplink date rate

6 Transceivers connected to Access Point

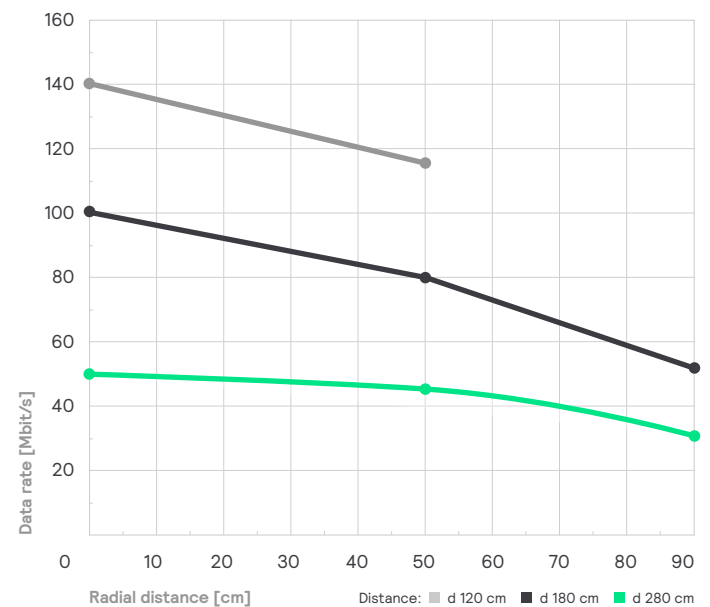


Figure 2: Uplink data rate

## Overlapping coverage areas

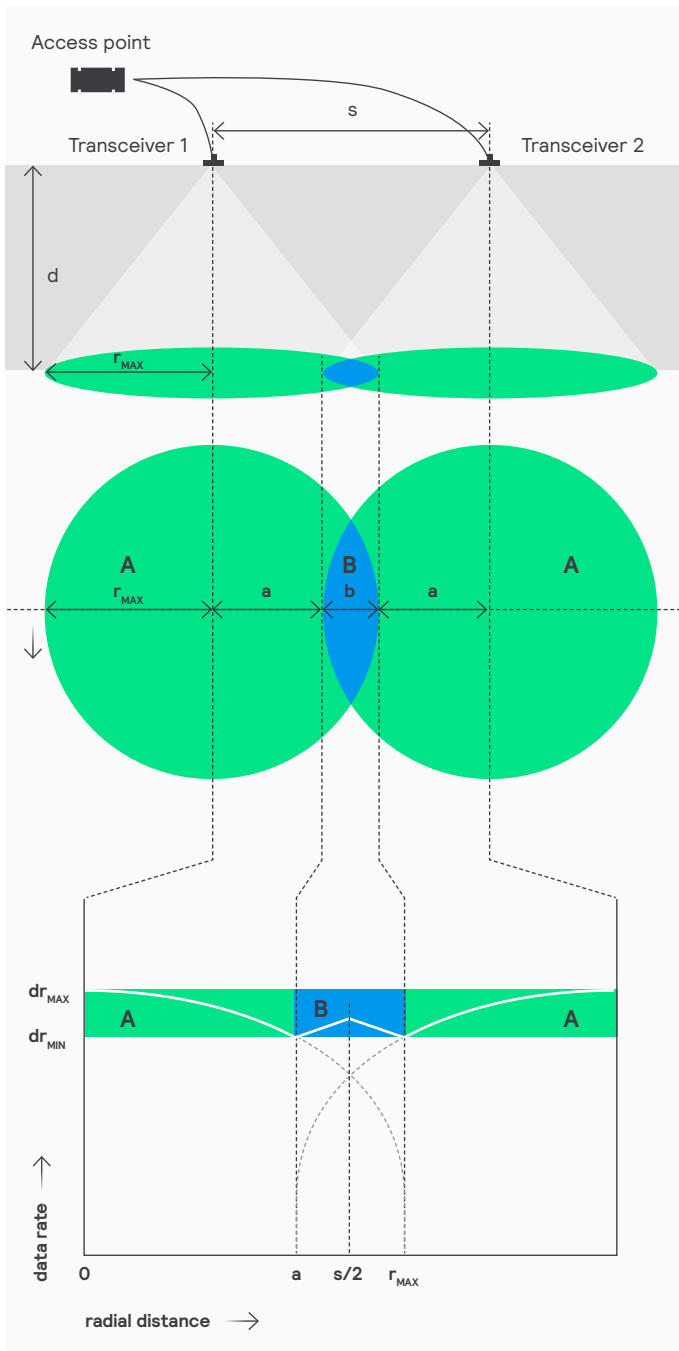


Figure 4: Overlapping coverage areas

### Legend

$s$	transceiver spacing
$d$	distance transceiver-USB key
$r_{MAX}$	radius of max coverage area
$a$	radius of area without overlap
$b$	max width of overlap area
$v = s / d$	relative transceiver spacing
A	areas without overlap
B	overlap area
$dr_{MAX}$	Max data rate
$dr_{MIN}$	Min data rate