



LT Pilot – remote control system
for Licht-Technik motoryokes and Click and Move

Users manual LT Pilot V2.0

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Caution! Operate the device only after having read and **understood** the operating instructions!

LT Pilot wireless remote control system for Licht-Technik motoryokes and Click and Move systems

The LT Pilot is a wireless **remote** control system for up to 4 Licht-Technik motoryokes or Click and Move systems. Mechanical dimmer shutters and/or focus units can be controlled optionally.

The **distance** between transmitter and receiver can be up to 250m (820 feet), line of sight. The **maximum** distance depends on the surrounding. Trees, walls, buildings etc. reduce the maximum distance.

The transmitter uses two mignon cells (type AA) for **power supply**. Normal batteries can be used as well as accumulators (NiCd or NiMh).

We recommend nickel-metal-hydrd (NiMh) accumulators with a minimum capacity of 2000 mAh. The continious **working time** with a fully charged accu of this type is up to 5 hours.

The positions of the devices (pan, tilt, shutter, focus) are **stored** continuously so that there is no move after power up. As a result, the transmitter can be **switched off** at any time to save battery power.

When battery power is low, the corresponding **led** will light. Operation can be continued, until the device is working no more. **But:** The accus will be deep discharged which will decrease lifetime enormously.

You should change the batteries/accus when this LED lights.

The dimmers and the focus units have an LED-indicator to show the user the **endpoint** positions. The focus LEDs have no effect in Click and Move systems.

The receiver generates a **DMX512** (USITT 1990) signal, which can be connected to a Licht-Technik splitbox/power supply (PS104, PS204) or Click and Move system(s).

The receiver has **three leds** to indicate the current state: A power led, a link led and a led that indicates that the spare input is used.

A **spare input** from a Licht-Technik light mixing panel (data-power cable, 4pin) is available. For example, the receiver is mounted on a cherry picker a spare line can be run to the bottom. If a DMX-panel is connected to this line, the control of the devices is now done by the panel. The wireless remote control is inactive. A mains power supply for the remote system must still be connected.

The transmitting and receiving parts are certified to be used in the European union. Compliant with ETS-300-220-3 & R&TTE directive.

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Safety and operating instructions

Admissible ambient **temperature**: 0 to +55 °C

The housing is **splashproof**. Do not use the system in heavy rain.

Close the **covers** of unused connectors.

In case of water **condensation**, a waiting time of 2 hours is necessary until acclimatisation is reached.

Make sure that all parts are **firmly connected**. Use **safety belts**.

Make sure that all **locking bolts** are inserted and all wingnuts are fastened.

Use only clamps which are in **good condition**, especially the screws and bolts.

Power supply via power input of the receiver must only be realized via power supplies **authorized** by us.

Do not put normal **batteries** into the charging station.

When operating the system with a **generator**, first start the generator, after that switch on the Click and Move system. Never start the generator when the devices are connected and switched on.

This is a class 1e radio transmitting product. This means the radio output works at 10mW power output and 10% duty cycle (10% of the time transmitting, 90% not transmitting).

Electrical radio transmission causes an **electrical radio field**. The power output for transmission at this device is very low. However, try to put the transmitter as far as possible from persons. Switch **off** the transmitter as often as possible. When the devices are positioned, there is no reason to leave it switched on!

When it has to be assumed that a **safe operation** is no longer possible, the equipment must be switched off immediately and be secured against unintended operation.

This is the case when:

- the device shows visible damages
- the device is inoperative
- parts of the device are loose or slackened
- connecting lines show visible damages

Before starting the equipment the user must check the **usefulness** of the device for its intended purpose. In particular, Licht-Technik shall decline any liability for damages of the equipment as well as for consequential damages resulting of the device being used inappropriately, of inexpert installation, incorrect starting, use and noncompliance with the valid safety regulations.

User interface elements

Transmitter:

Signal LED:

- red: Weak signal or no link
- orange: Signal with medium strength
- green: Signal with good quality

- Low Batt:** The accu/battery strength goes down!
Exchange these soon!
The device is going to work as long as possible, but please remember that deep discharge will damage the accu!



The **UNIT** – button selects the desired unit. One of the LEDs on the right side indicate the current unit.

The **UP, DOWN, LEFT** and **RIGHT** – buttons control pan and tilt.

The **FINE** button is for fine positioning of the lamp. A LED shows if the fine function is selected.

The **FOCUS** – buttons move the focus drive. The two LEDs on the left side indicate the endpoints. The focus LEDs are "don't care" in Click and Move systems.

The **OPEN** – button opens (more light) the mechanical dimmer shutter if connected. Locked if Blackout is selected. The upper Shutter LED show the open endpoint.

The **CLOSE** – button closes (less light) the mechanical dimmer shutter if connected. Locked if Blackout is selected. The lower Shutter LED show the close endpoint.

The **FLASH** – button opens the shutter completely (flash).

The **BLACKOUT** – button closes the selected dimmer shutter completely. When pressing again the previous value will be restored. A LED signals the blackout state. The flash function is possible when in blackout state. ("flash prior blackout").

For accu/battery exchange, see page 8.

Receiver:



Power LED: Is on, if there is power on the 24V DC in input.

Link LED: Is on, if a radio link is established.

Spare LED: Is on, if the spare input is used. A DataPower signal must be connected to this input

24V DC In: Power in. Pinout see above.

DMX out: DMX out, 5pin. This is the signal for a splitbox with powersupply, e.g. PS104 or PS204.

Spare In: Spare line in, 4pin DataPower. If a Mix08 is connected, this is the master controller, radio link has no effect.

Accu/Battery exchange

For exchanging the accu/battery, open the cover of the battery box by loosening the two screws.

We recommend Nickel-Metal-Hydrid (Ni-MH) accus of the manufacturer Ansmann with a capacity of minimum 2000 mAh.

Observe the tight polarity, indicated nearby the batteries.



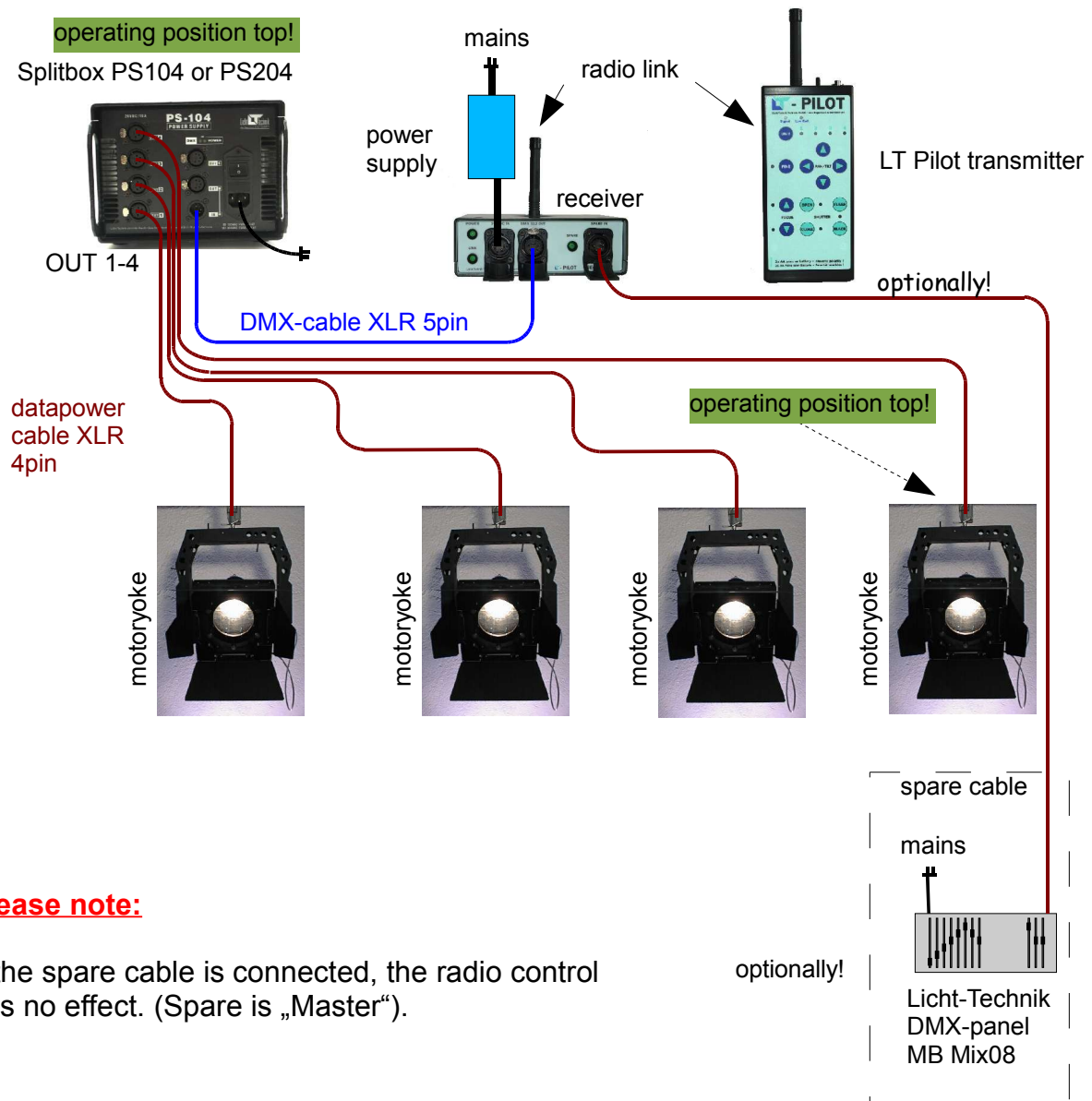
DMX in general

The standardized DMX-Signal is based on industries RS485 Interface. It is designed for maximum lengths up to 1200m. This length is in the rough environment of theatres, studios for example normally not possible. As a result of internal tests we recommend a maximum length of 200m (**only DMX, 5PIN**).

The last device of a serie should be connected with a terminating impedance (470 Ohm). It is plugged into the OUT connector of the last device of a row.

Cabling with motoryokes and splitbox

Please observe the users manual for motoryokes and powersupply/splitbox.



Please note:

If the spare cable is connected, the radio control has no effect. (Spare is „Master“).

DMX addressing and motoryoke options programming

	Unit 1	Unit 2	Unit 3	Unit 4
DMX start address yoke	1	21	31	41
DMX address dimmer shutter	8	9	10	11

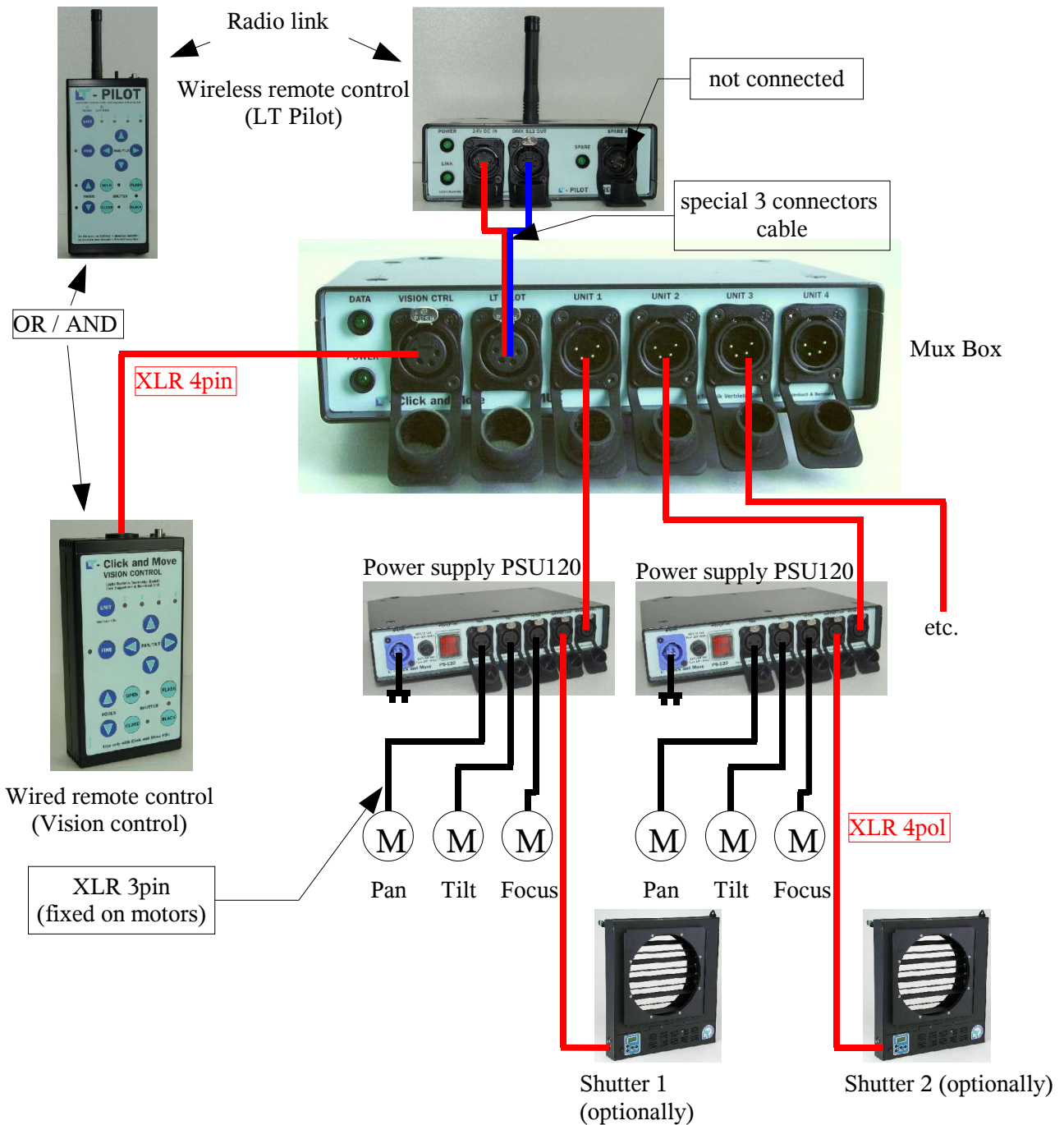
The following menu points must be programmed as follows (See also the corresponding user manuals):

Motoryoke: P01 = DMX address (see above)
 P02 = 1 Focus module on (if mounted)
 P03 = 0 Motorized barndoor off
 P27 = 1 Set speed channels for PAN and TILT seperately
 P38 = 0 Focus direction = normal

Dimmer Shutter: P01 = DMX address (see above)
 P15 = 3 One address mode

Cabling with Click and Move systems

Please observe the users manual for Click and Move and Shutter.



If only one Click and Move system is used, the LT-Pilot can be connected directly to the "Control in" - input of the Click and Move PSU120 with "three connectors" cable.

Getting started

Read carefully the safety- and operating instructions on page 5.

If motoryokes are used cable the system like illustrated on page 9.

If Click and Move systems should be controlled use cabling schematic on page 11.

Switch **on** all devices except the remote control unit (Transmitter).

If not yet done, program the the right **DMX addresses**. See table on page 10.

Switch **on** the remote control unit.

When switching on the receiver and transmitter, the link respectively the signal LED are flashing fast for about one second. In this time the devices wait for a remote setup unit (Channel, ID number). If no remote setup device is found, the radio system will work normally. Also see manual for the remote setup device.

The **signal strength indicator** reaches the top after a few seconds (when signal quality is okay). The system is ready for work. When the system has an air-link, the transmitter indicates the current unit, shutter and dimmer position. The receiver link-LED is on.

If air link is not okay, the transmitter unit signal LED lights red. The link LED of the receiver is off.

Technical data

Weight and dimensions:

(With antenna, accu/battery and fastening spigot)

Transmitter: (Length x Width x Height)	260 mm x 85 mm x 33 mm	0,5 kg
Receiver: (Length x Width x Height)	155 mm x 140 mm x 130 mm	0,75 kg

<u>Power input:</u>	<u>Transmitter:</u> 2 x Mignon (AA-cells),	max.: 0,75W
	<u>Receiver:</u> 24V DC	max.: 1 W

PIN assignment (receiver):

DMX out:	5pin XLR connector (female)	
	PIN1 Shield	cross-section min. 0,25 mm ²
	PIN2 Data-	cross-section min. 0,25 mm ²
	PIN3 Data+	cross-section min. 0,25 mm ²
	PIN4 not connected	cross-section min. 0,25 mm ²
	PIN5 not connected	cross-section min. 0,25 mm ²

Power input:	4pin XLR connector (male)	
	PIN1 GND	cross-section min. 0,75 mm ²
	PIN2 not connected	cross-section min. 0,25 mm ²
	PIN3 not connected	cross-section min. 0,25 mm ²
	PIN4 +24V DC	cross-section min. 0,75 mm ²

Spare input:	4pin XLR connector (male)	
	PIN1 GND	cross-section min. 0,75 mm ²
	PIN2 Data-	cross-section min. 0,25 mm ²
	PIN3 Data+	cross-section min. 0,25 mm ²
	PIN4 +24V DC	cross-section min. 0,75 mm ²

Please note: To avoid electrical and magnetical radio interferences, please use only screened cables. This improves also a safe operation of the devices.

The DMX wires must be twisted pair and shielded separately.

<u>Radio:</u>	Radio power output:	10 mW (+10 dBm)
	Frequency:	434 MHz, ISM band
	Maximum distance:	250m / 820 feet (line of sight)
	SRD class 1e device:	10% of the time transmitting, 10% duty cycle Complies with CEPT 70-03E recommendation
	Licensed in the european union.	ETS-300-220-3 09/2000 R&TTE (1999/5/EC)

Malfunctions

No transmitter led lights:

- Are the batteries/accus inserted correctly? Check the right polarity (+/-)
- Are the batteries/accus ok/charged?

Only the signal LED lights (Transmitter):

- Is the receiver switched on and ready for operation?

Power LED at the receiver does not light:

- Is the powersupply of the receiver connected to the mains?
- Check power-in cable and connections.

Link LED at the receiver does not light:

- Is the transmitter switched on?
- Is the battery/Accu okay? Does the low bat – led light? If yes, replace battery pack or charge the accu.
- Is the transmitter too far away from the receiver? Maximum distance is 250m (820 feet, line of sight!)

The system does not work correctly:

- Avoid long cables if possible!
- Try to put the receiver as far as possible from lamp ballasts and lamp cables.
- Use terminating resistors at the end of DMX lines (470 Ohm between Pin 2 and 3).
- Is the battery okay? Does the low bat – led light? If yes, replace battery pack or charge the accu.
- Is the transmitter too far away from the receiver? Maximum distance is 250m (820 feet, line of sight!)

Motoryokes/Dimmer shutters show: Error 20: DMX signal missing

- Check DMX supply cable to the Power supply unit (splitbox) if Pin 2 and/or Pin3 are interrupted.
- If the spare line is used, check if Pin 2 and/or Pin3 are interrupted.
- Check the datapower cable(s) to the devices if Pin 2 and/or Pin3 are interrupted.

Motoryokes/Dimmer shutters show: Error 21: DMX signal reversed

- Check DMX supply cable to the Power supply unit (splitbox) if Pin 2 and Pin3 are interchanged
- If the spare line is used, check if Pin 2 and Pin3 in spare cable are interchanged.

If the error cannot be recovered, please contact Licht-Technik.

Warranty

The warranty for this device is 2 years. It comprises any repair of failures – free of charge – which can be proved to result from defects of fabrication.

Warranty expires when:

- the device was modified or attempted to be repaired
- damages were caused by the intervention of foreign persons
- damages are due to noncompliance with the operating instructions
- the device was connected to an incorrect voltage or incorrect type of current
- the device was incorrectly operated or when damages were caused by negligent handling or misuse

Further information

This document and the information contained therein are subject to copyright and neither the whole nor any part of it may, and this is also valid for the described product, be reproduced, copied or recorded in any form without the prior written authorization of *Licht-Technik Vertriebs GmbH*.

The products of *Licht-Technik GmbH* are subject to constant development. Therefore *Licht-Technik* reserves the right to modify components, motors and also technical specifications any time and without prior notice.

All maintenance and servicing works related to the product must be carried out by the company *Licht-Technik*. *Licht-Technik* shall not assume any liability for losses or damages of any kind being the results of inexperienced servicing.

EC Declaration of Conformity

1. **Type of device/product** Radio transmitter LT-Pilot
2. **Name and address of manufacturer** Licht-Technik Vertriebs GmbH
Osterwaldstraße 9-10
80805 München

3. **The manufacturer is responsible for this declaration**

4. **Gegenstand der Erklärung** LT-Pilot-E, LT-Pilot-S

5. **The described item is conform to the following guidelines/regulations:**

RICHTLINIE 2014/53/EU DES EUROPÄISCHEN PARLAMENTS UND DES RATES vom 16. April 2014 über die Harmonisierung der Rechtsvorschriften der Mitgliedstaaten über die Bereitstellung von Funkanlagen auf dem Markt und zur Aufhebung der Richtlinie 1999/5/EG

RICHTLINIE 2011/65/EU DES EUROPÄISCHEN PARLAMENTS UND DES RATES vom 8. Juni 2011 zur Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten

6. **Applied and conform to harmonized standards in particular:**

EN 300 220-2 V3.1.1:2017-03: Funkanlagen mit geringer Reichweite (SRD), die im Frequenzbereich 25 MHz bis 1 000 MHz arbeiten mit Leistungspegeln bis 500mW — Teil 2: Harmonisierte EN, die die wesentlichen Anforderungen nach Artikel 3.2 der EU-Richtlinie 2014/53/EU für unspezifische Funkgeräte enthält

DIN EN 301489-1:2017-07: Elektromagnetische Verträglichkeit für Funkeinrichtungen und -dienste - Teil 1: Gemeinsame technische Anforderungen - Harmonisierte EN, die die wesentlichen Anforderungen nach Artikel 3.1b der EU-Richtlinie 2014/53/EU und nach Artikel 6 der EU-Richtlinie 2014/30/EU enthält EN 301 489-1 V2.1.1 2017-02

DIN EN 301489-3:2013-12: Elektromagnetische Verträglichkeit und Funkspektrumangelegenheiten (ERM) – Elektromagnetische Verträglichkeit (EMV) für Funkeinrichtungen und -dienste - Teil 3: Spezifische Bedingungen für Funkgeräte geringer Reichweite (SRD) für den Einsatz auf Frequenzen zwischen 9 kHz und 246 GHz (Anerkennung der Englischen Fassung EN 301 489-3 V1.6.1 2013-08

DIN EN 62479:2011-09 Beurteilung der Übereinstimmung von elektronischen und elektrischen Geräten kleiner Leistung mit den Basisgrenzwerten für die Sicherheit von Personen in elektromagnetischen Feldern (10 MHz bis 300 Ghz). 1.10.2011

7. **Not applicable**

8. **This declaration is invalid if the device is changed technically and/or unintended use.**

The device is radio class 1 (Short range device, SRD) for use in the ISM band and a radio frequency of 433,05 to 434,79 MHz, a radio power output of 10mW, 10% duty cycle and a distance up to 250m.

Signed for: Licht-Technik Vertriebs GmbH

Place and date of description : München 27.9.2017



Uwe Hagenbach (managing director)



Bernhard Grill (managing director)