



smartmicro

SMART MICROWAVE SENSORS

TRAFFIC RADAR

Acceptance tests for TRUGRD (UMRR-12 Type 48)

✓ Intersection: Stop + Advance



COMPARISON | TRUGRD (UMRR-12 TYPE 48) VS. UMRR-0C T42

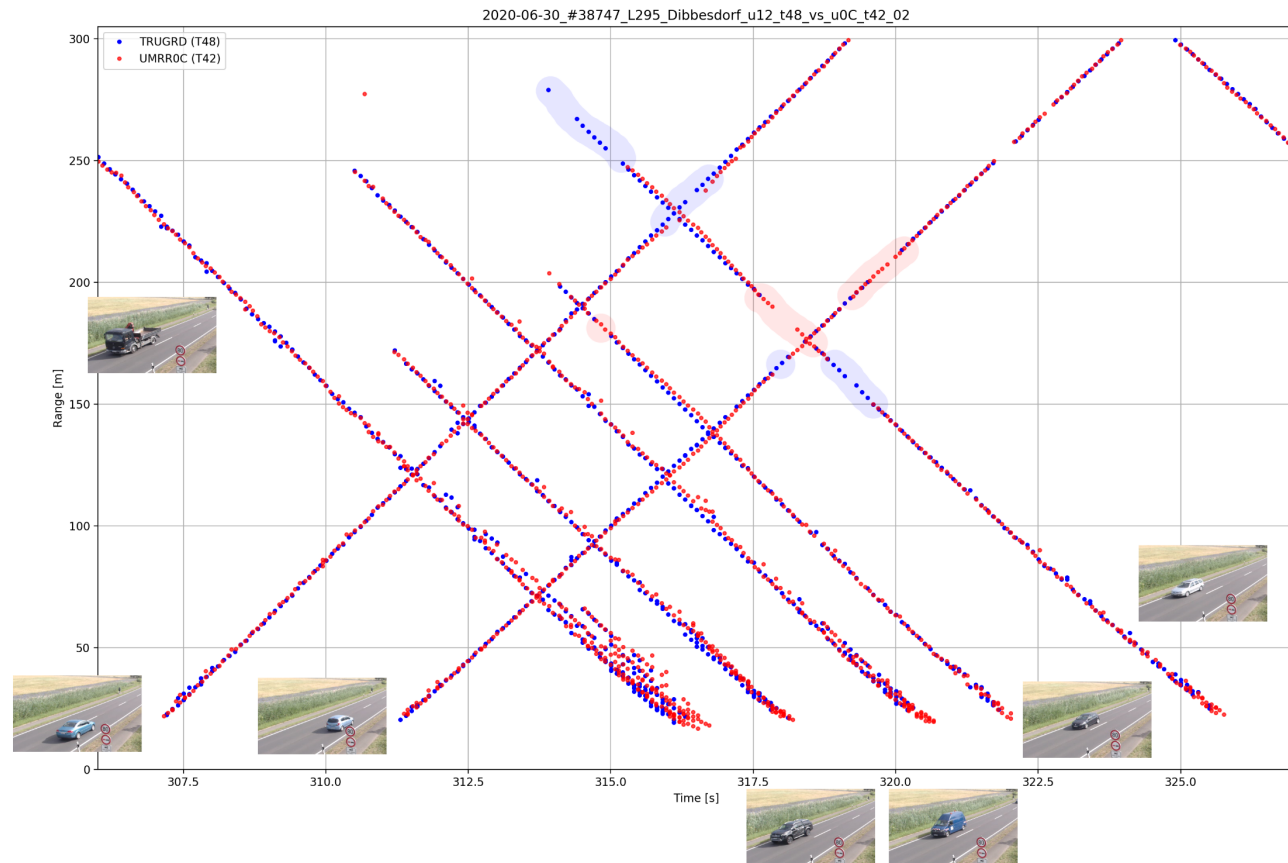
Parameter	Unit	UMRR-0C T42	TRUGRD (UMRR-12 Type 48)
Range Separation (true)	[m]	4	2
Range Accuracy	[m]	0.25	0.25
Speed Separation (true)	[m/s]	0.28	0.23
Speed Accuracy	[m/s]	0.14	0.12
FOV Azimuth	[°]	+ 50°	+55°
Azimuth Accuracy	[°]	0.5	0.5
Azimuth Resol. (Separation)	[°]	-	6
Antennas	-	1+8 (8 channels)	2+8 (16 channels) (only 3D used)
Sensitivity @12.7dBm	[RCS@m]	10 @ 170m	10 @ 200m
FOV Elevation	[°]	-	+ - 10

COMPARISON | TRUGRD (UMRR-12 TYPE 48) VS. UMRR-0C T42

- ✓ TRUGRD
 - ✓ Software version: 6.2.2.0
- ✓ UMRR-0C Type 42
 - ✓ Software version: 3.15.08

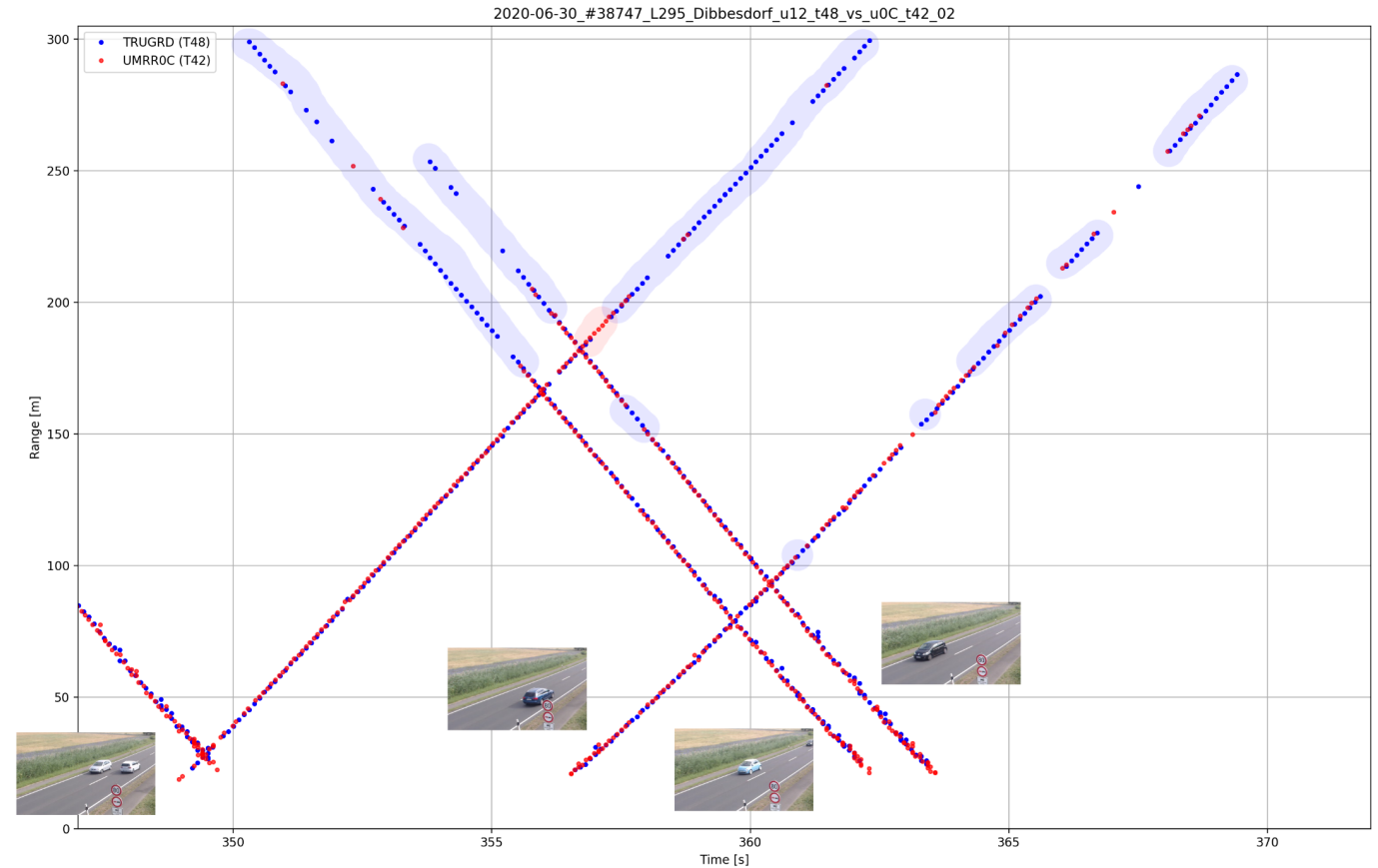
DETECTION ACCURACY | RAW TARGET LEVEL

- ✓ TRUGRD vs. UMRR-OC Type 42
 - ✓ TRUGRD: Waveform 0 | 75 MHz | 12.7 dBm
- ✓ Note: stationary targets were removed
- ✓ Better object trajectories
- ✓ Higher sensitivity – longer range



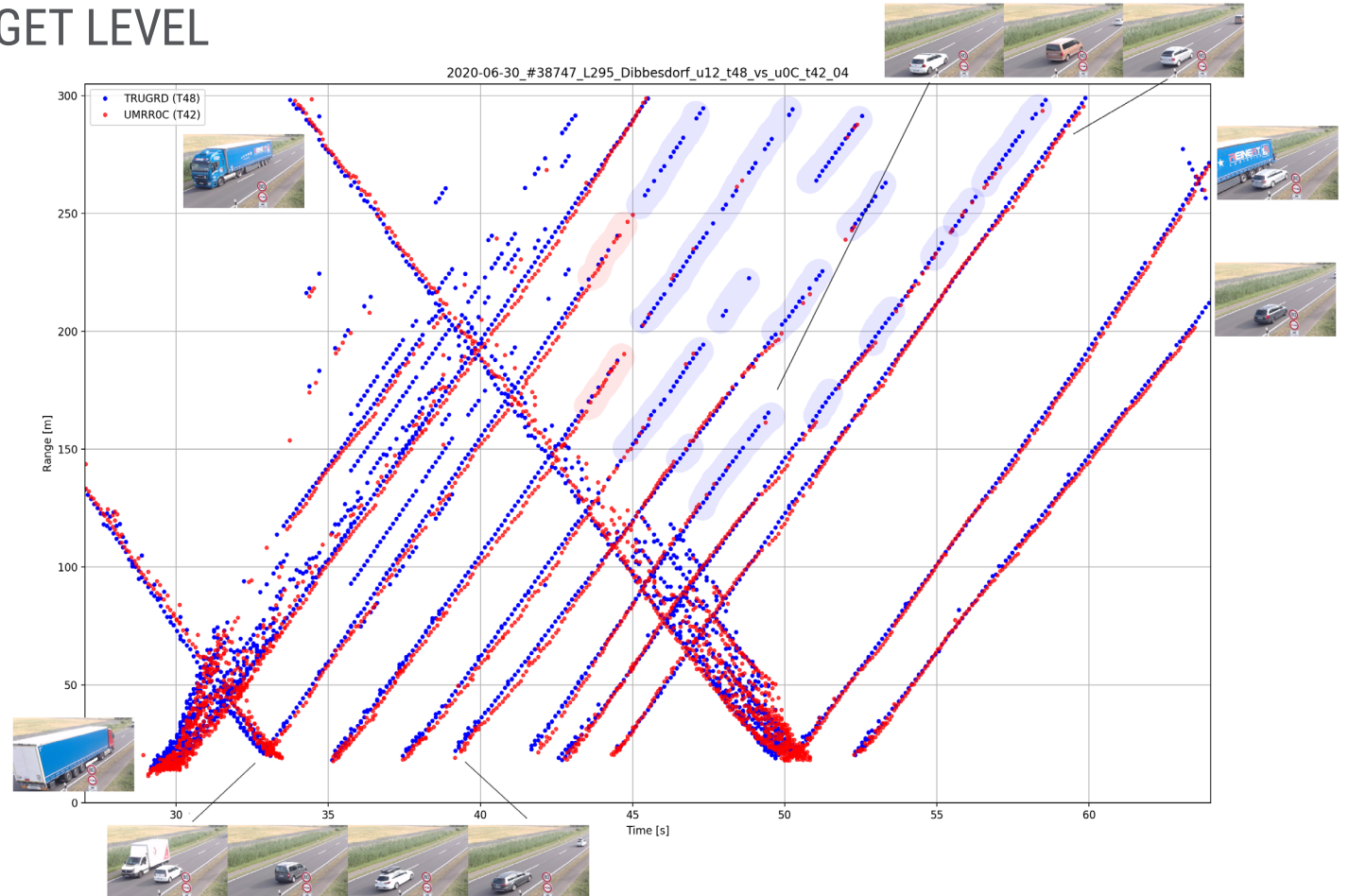
DETECTION ACCURACY | RAW TARGET LEVEL

- ✓ TRUGRD vs. UMRR-0C Type 42
 - ✓ TRUGRD: Waveform 0 | 75 MHz | 12.7 dBm
- ✓ Note: stationary targets were removed
- ✓ Better object trajectories
- ✓ Higher sensitivity – longer range



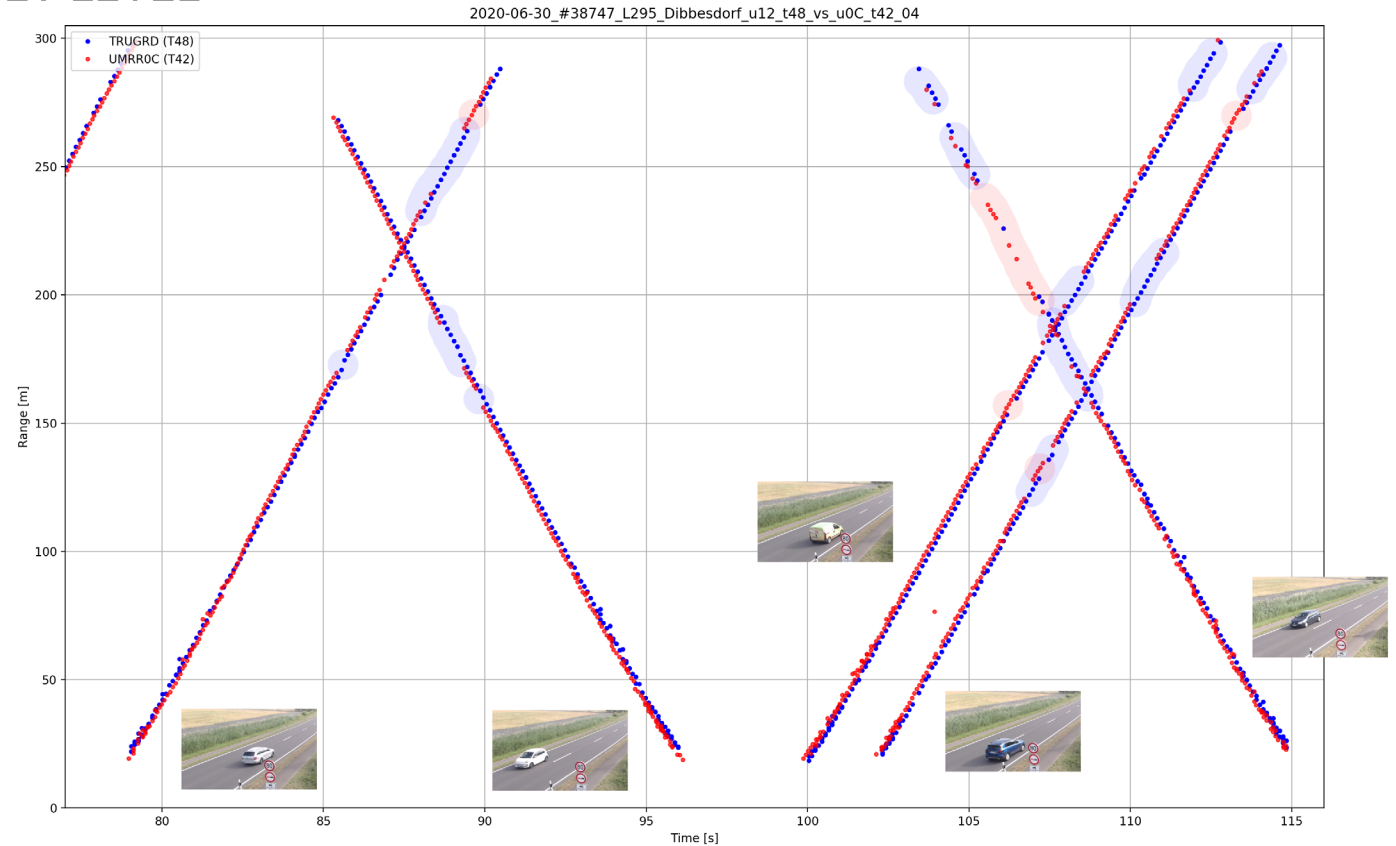
DETECTION ACCURACY | RAW TARGET LEVEL

- ✓ TRUGRD vs. UMRR-OC Type 42
 - ✓ TRUGRD: Waveform 0 | 75 MHz | 20.0 dBm
- ✓ Note: stationary targets were removed
- ✓ Better object trajectories
- ✓ Higher sensitivity – longer range



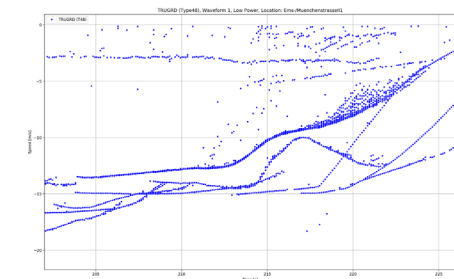
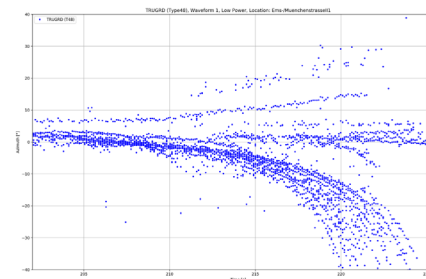
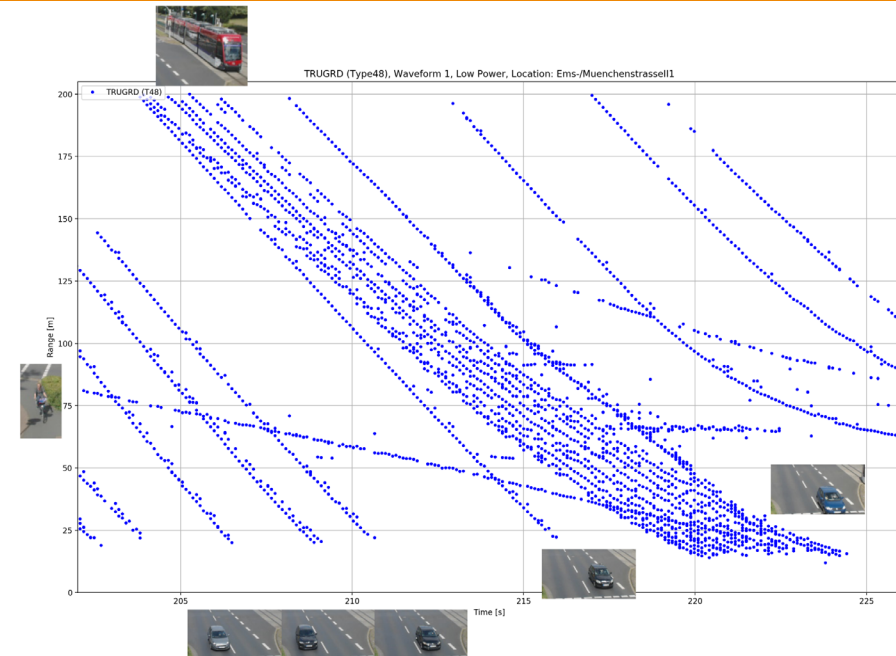
DETECTION ACCURACY | RAW TARGET LEVEL

- ✓ TRUGRD vs. UMRR-OC Type 42
 - ✓ TRUGRD: Waveform 0 | 75 MHz | 20.0 dBm
- ✓ Note: stationary targets were removed
- ✓ Better object trajectories
- ✓ Higher sensitivity – longer range



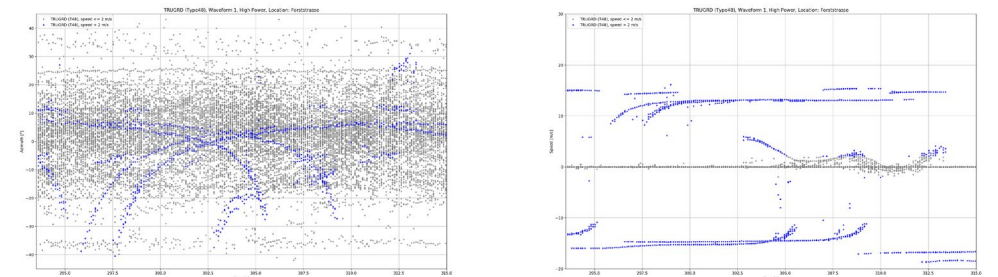
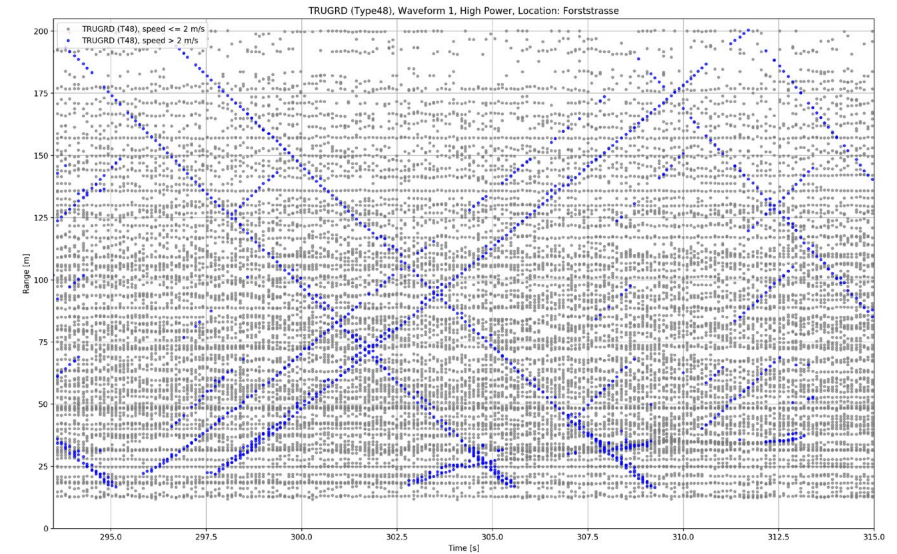
DETECTION ACCURACY | RAW TARGET LEVEL

- ✓ TRUGRD (UMRR-12 Type 48)
 - ✓ Waveform 0 | 150 MHz | 12.7 dBm
- ✓ Note: stationary targets were removed
- ✓ Range resolution two times better compared to UMRR-0C Type 42
 - ✓ Significantly more reflections per object



DETECTION ACCURACY | RAW TARGET LEVEL

- ✓ TRUGRD (UMRR-12 Type 48)
 - ✓ Waveform 0 | 150 MHz | 12.7 dBm
- ✓ Stationary targets included
- ✓ Range resolution two times better compared to UMRR-0C Type 42
 - ✓ Significantly more reflections per object
 - ✓ Large number of stationary reflectors also reliably detected



CONCLUSION | COMPARISON TRUGRD (UMRR-12 TYPE 48) VS. UMRR-0C TYPE 42

- ✓ TRUGRD (UMRR-12 Type 48) has more stable and accurate detection
 - ✓ Almost seamless detection between 30 – 200 m
 - ✓ Better performance in low and high power operation mode
 - ✓ 2x better range resolution in waveform 1



ADDRESS

s.m.s, smart microwave sensors GmbH

In den Waashainen 1

38108 Braunschweig, Germany

CONTACT

Phone: +49 531 39023-0

Fax: +49 531 39023-599

info@smartmicro.de

www.smartmicro.com

DISCLAIMER NOTICE

All products, product specifications and data in this presentation may be subject to change without notice to improve reliability, function or otherwise.

Not all products and/or product features may be available in all countries and regions. For legal reasons features may be deleted from products or smartmicro may refuse to offer products. Statements, technical information and recommendations contained herein are believed to be accurate as of the stated date. smartmicro disclaims any and all liability for any errors, inaccuracies or incompleteness contained in this document or in any other disclosure relating to the product.

To the extent permitted by applicable law, smartmicro disclaims (i) any and all liability arising out of the application or use of the product or the data contained herein, (ii) any and all liability of damages exceeding direct damages, including - without limitation - indirect, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of the suitability of the product for particular purposes.

Statements regarding the suitability of products for certain types of applications are based on smartmicro's knowledge of typical requirements that are often placed on smartmicro products in generic/general applications. Statements about the suitability of products for a particular/specific application, however, are not binding. It is the customer's/user's responsibility to validate that the product with the specifications described is suitable for use in the particular/specific application. Parameters and the performance of products may derive from statements made herein due to particular/specific applications and/or surroundings. Therefore, it is important that customer/user has thoroughly tested the products and has understood the performance and limitations of the products before installing them for final applications or before their commercialization. Although products are well optimized to be used for the intended applications stated, it must also be understood by the customer/user that the detection probability may not be 100% and that the false alarm rate may not be zero.

The information provided, relates only to the specifically designated product and may not be applicable when the product is used in combination with other materials or in any process not defined herein. All operating parameters, including typical parameters, must be validated for each application by the customer's/user's technical experts. Customers using or selling smartmicro products for use in an application which is not expressly indicated do so at their own risk.

This presentation does not expand or otherwise modify smartmicro's terms and conditions of purchase, including but not being limited to the warranty. Except as expressly indicated in writing by smartmicro, the products are not designed for use in medical, life-saving or life-sustaining applications or for any other application in which the failure of the product could result in personal injury or death.

No license expressed or implied, by estoppel or otherwise, to any intellectual property rights is granted by this presentation or by any conduct of smartmicro product names and markings noted herein may be trademarks of their respective owners.

Please note that the application of the product may be subject to standards or other regulations that may vary from country to country. smartmicro does not guarantee that the use of products in the applications described herein will comply with such regulations in any country. It is the customer's/user's responsibility to ensure that the use and incorporation of products comply with regulatory requirements of their markets.

If any provision of this disclaimer is, or is found to be, void or unenforceable under applicable law, it will not affect the validity or enforceability of the other provisions of this disclaimer.