
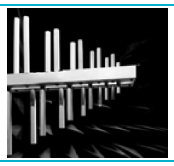
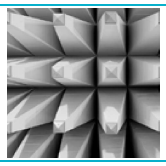

CTC advanced
member of RWTÜV group

TEST REPORT

Test Report No.: 1-3916/22-01-04

DAkkS Deutsche Akkreditierungsstelle D-PL-12076-01-01

Testing Laboratory

CTC advanced GmbH
Untertürkheimer Straße 6 – 10
66117 Saarbrücken/GERMANY
Phone: + 49 681 5 98 - 0
Fax: + 49 681 5 98 - 9075
Internet: https://www.ctcadvanced.com
e-mail: mail@ctcadvanced.com

Accredited Testing Laboratory:
The testing laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025 (2018) by the Deutsche Akkreditierungsstelle GmbH (DAkkS)
The accreditation is valid for the scope of testing procedures as stated in the accreditation certificate with the registration number: D-PL-12076-01-01

Applicant

TELEDYNE FLIR
Antennvägen 6
187 66 Täby/SWEDEN
Phone: +46 87 53 25 00
Contact: Göran Skedung
e-mail: goran.skedung@teledyneflir.com
Phone: +46 87 53 27 59

Manufacturer

TELEDYNE FLIR
Antennvägen 6
187 66 Täby/SWEDEN

Test Standard/s

ETSI EN 301 489-1 V2.2.3	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard for ElectroMagnetic Compatibility
ETSI EN 301 489-17 V3.2.5 (Draft)	Part 17:Specific conditions for Broadband and Wideband Data Transmission Systems; Harmonised Standard for ElectroMagnetic Compatibility

All applied test standards are listed in section 3 of this test report.

Test Item

Kind of product:	**Infrared Camera for Gas leakage Detection**
Product name:	**FLIR-G1010**
Serial number:	*see chapter 6.2*
Hardware version:	*see chapter 6.2*
Software version:	*see chapter 6.2*

This test report is electronically signed and valid without handwritten signature. The public keys can be requested at the test laboratory to verify the electronic signatures.

Test report authorised:

cn=Thomas Merten, o=CTC advanced GmbH, ou=MET-211129, email=Thomas.Merten@ctcadvanced.com, c=DE
2022.10.11 08:20:38 +02'00'

Thomas Merten
Lab Manager
Electromagnetic Compatibility & Acoustics

Test performed:

p.o

cn=Felix Schorr, o=CTC advanced GmbH, ou=SOR-220315, email=felix.schorr@ctcadvanced.com, c=DE
2022.10.11 06:59:10 +02'00'

Jenny Lang
Testing Manager
Electromagnetic Compatibility & Acoustics

1 Table of contents

2 General information

2.1 Notes

The test results of this test report relate exclusively to the test item specified in this test report. CTC advanced GmbH does not assume responsibility for any conclusions and generalisations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of CTC advanced GmbH.
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This test report is electronically signed and valid without handwritten signature. For verification of the electronical signatures, the public keys can be requested at the testing laboratory.

2.2 Application details

Date of receipt of order:	2022-09-23
Date of receipt of test item:	2022-09-26
Start of test:	2022-09-26
End of test:	2022-09-28
Person(s) present during the test:	Mr. Skedung; Mr. Karlson

3 Test standard/s:

Test standard	Test description
ETSI EN 301 489-1 V2.2.3	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard for ElectroMagnetic Compatibility
ETSI EN 301 489-17 V3.2.5 (Draft)	Part 17:Specific conditions for Broadband and Wideband Data Transmission Systems; Harmonised Standard for ElectroMagnetic Compatibility
EN 55032:2015/A11:2020	Electromagnetic compatibility of multimedia equipment - Emission requirements
EN 55035:2017/A11:2020	Electromagnetic compatibility of multimedia equipment – Immunity requirements
EN 61000-6-2	Electromagnetic compatibility (EMC); Part 6-2: Generic Standards - Immunity for industrial environments

4 Test environment

Temperature:	15 °C – 35 °C
Relative humidity content:	30 % – 60 %
Air pressure:	860 hPa – 1060 hPa
Power supply of measurement equipment:	230 V / 50 Hz

5 Test Laboratories sub-contracted

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6 Information about test item

6.1 Test item

Radio equipment EUT A

Kind of product :	Infrared Camera for Gas leakage Detection			
Product name :	FLIR-G1010			
Equipment classification:	equipment for fixed use (according to EN 301 489-1, clause 3.1) equipment for portable use (according to EN 301 489-1, clause 3.1)			
Environment classification:	industrial environment (according to EN 301 489-1, clause 1)			
Operating frequency range:	Bluetooth (2402 - 2480 MHz) WLAN (2,4 and 5 GHz band)			
Power supply :	AC by external power supply unit battery powered			
Supply voltage :	AC 100 - 240 V DC 7,4 V (nominal) via battery			
Ports :	**Classification and description**		**Direction**	**Length**
(maximum cable lengths declared by manufacturer)	*AC/DC adapter CMP model: S040QM1200300*			
	AC power port		input	> 3 m
	DC power port		output	< 3 m
	FLIR-G1010			
	DC power port		input	< 3 m
	Signal/control port (USB)		in / output	< 3 m
	Signal/control port (HDMI)		in / output	< 3 m
Is mounting position / usual operating position defined?			No	
Additional information:				
Test set-up / cabling / operating modes of EUT during tests according to customer.				

6.2 EUT: Type, S/N etc. and short descriptions used in this test report

	Radio equipment	Product name	Serial number	Hardware version	Software version
EUT A	Infrared Camera for Gas leakage Detection	FLIR-G1010	16012937	T300535-A	0.1.5
Note: EUT short description is used to simplify the identification of the EUT in this test report.					

6.3 Auxiliary equipment (AE): Type, S/N etc. and short descriptions

	Auxiliary equipment	Type	Serial number	Hardware version	Software version
AE 1	Laptop of customer	--	--	--	--
AE 2	Laptop of customer	--	--	--	--
AE 3	WLAN router of customer	--	--	--	--
AE 4	Bluetooth sensor of customer	--	--	--	--
NOTE: AE short description is used to simplify the identification of the auxiliary equipment in this test report.					

6.4 EUT set-up(s)

EUT set-up no.*)	Combination of EUT and AE	Remarks
set. 1	EUT A + AE 1 + AE 2 + AE 3 + AE 4	--
set. 2	EUT A + AE 1	for radiated emission

*) EUT set-up no. is used to simplify the identification of the EUT set-up in this test report.

6.5 EUT operating modes

EUT operating mode no.*)	Description of operating modes	Additional information
op. 1	cont. USB communication (live stream), radio idle	for radiated emission
op. 2	cont. Bluetooth communication, cont. USB communication (live stream), cont. WLAN communication	op. 2a: WLAN 2,4 GHz (live stream) op. 2b: WLAN 5 GHz (live stream) op. 2c: WLAN 2,4 GHz („PING“) op. 2d: WLAN 5 GHz („PING“)

*) EUT operating mode no. is used to simplify the test report.

7 Summary of test results

☒ All of the performed measurements are passed
☐ At least one of the performed measurements is failed

7.1 Emission

7.1.1 Enclosure

EMI Phenomenon	Frequency range	Basic standard	Result
Radiated interference field strength	30 – 1000 MHz	EN 55032 Class B	**passed**
EMI Phenomenon	**Frequency range**	**Basic standard**	**Result**
Radiated interference field strength	1000 – 6000 MHz	EN 55032 Class B	**passed**

Note: The emission tests according to the EMC standard(s) do not replace necessary spurious emission tests according to the radio standard(s).

7.1.2 AC Mains power Input/Output ports

EMI Phenomenon	Frequency range	Basic standard	Result
Conducted interference voltage	0,15 – 30 MHz	EN 55032 Class B	**passed**
Harmonic current emission	0 – 2 kHz	EN 61000-3-2	**NA6**
Voltage fluctuations and flicker		EN 61000-3-3	**NA7**

7.1.3 DC power Input/Output ports

EMI Phenomenon	Frequency range	Basic standard	Result
Conducted interference voltage	0,15 – 30 MHz	EN 55032 Class A	**NA4**

7.1.4 Wired network port

EMI Phenomenon	Frequency range	Basic standard	Result
Conducted interference voltage	0,15 – 30 MHz	EN 55032 Class B	**NA2**

7.2 Immunity

7.2.1 Enclosure

EMS Phenomenon	Frequency range	Basic standard	Result
Electrostatic discharge		EN 61000-4-2	**passed**
Radio frequency electromagnetic field	80 – 6000 MHz	EN 61000-4-3	**passed**
Magnetic fields	50 Hz	EN 61000-4-8	**passed**

7.2.2 AC Mains power Input/Output ports

EMS Phenomenon	Frequency range	Basic standard	Result
Fast transients, common mode		EN 61000-4-4	**passed**
Surges		EN 61000-4-5	**passed**
Radio frequency, common mode	0,15 – 80 MHz	EN 61000-4-6	**passed**
Voltage dips, interruptions, and fluctuations		EN 61000-4-11	**passed**

7.2.3 DC power Input/Output ports

EMS Phenomenon	Frequency range	Basic standard	Result
Fast transients, common mode		EN 61000-4-4	**NA4**
Radio frequency, common mode	0,15 – 80 MHz	EN 61000-4-6	**NA4**
Transients and surges, vehicular environment		ISO 7637-2:2004	**NA1**

7.2.4 Signal/Control port

EMS Phenomenon	Frequency range	Basic standard	Result
Fast transients, common mode		EN 61000-4-4	**NA4**
Radio frequency, common mode	0,15 – 80 MHz	EN 61000-4-6	**NA4**

7.2.5 Wired network port

EMS Phenomenon	Frequency range	Basic standard	Result
Fast transients, common mode		EN 61000-4-4	**NA2**
Surges		EN 61000-4-5	**NA2**
Radio-frequency, common mode	0,15 – 80 MHz	EN 61000-4-6	**NA2**

Remarks:

NA1	Not tested because not required by used standard
NA2	Test not applicable because port does not exist
NA3	Test not applicable because port only for services
NA4	Test not applicable because port lengths not longer than 3m
NA5	Not tested because not required by customer
NA6	For equipment with a rated power of ≤75 W, other than lighting equipment, no limits are specified in this edition of the standard.
NA7	No test shall be made on equipment which is unlikely to produce significant voltage fluctuations or flicker.
NA8	Not performed, because highest internal frequency < 108 MHz
NA9	Not performed, because test only applicable to equipment containing devices intrinsically susceptible to magnetic fields.