



Test report issued under the responsibility of:
EMITECH LYON laboratory
MRA US-EU Designation Number: FR0013
Canadian CAB Identifier : FR0007

EMF TEST REPORT

KDB 447498 D01 V06

Company: **MICROOLED**
Address.....: BHT2
17 rue Felix Esclangon
38000 GRENOBLE - FRANCE

Test item description: **Connected glasses with Head Up Display**
Trade Mark: Activelook
Manufacturer: Microoled
Model/Type reference.....: ISP4520-US
FCC ID.....: 2AY23-2001
IC: 27140-2001
Ratings.....: 3.2Vdc to 4.2Vdc

Testing Laboratory: **EMITECH LYON laboratory**
Address.....: ZI de Mi-Plaine
7 rue Georges Méliès
69680 CHASSIEU - France

Report Reference No.: **R410-20-105636-1A**
Test procedure: FCC IC Certification
Diffusion.....: Mr ARBET-PONT
Applicant's name: MICROOLED
Date of issue.....: November 4, 2021
Total number of pages.....: 14
Revision.....: 0
Modified page(s).....: Creation
Compiled by.....: T VINAY
Approved by (+ signature): Olivier HEYER (Laboratory Manager)



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This document submits the results of SAR evaluation of the equipment **Connected glasses with Head Up Display** (denominated hereafter E.U.T.: equipment under test) according to document(s) listed in §2 of this test report.

E.U.T.	Equipment under test	AE	Ancillary equipment
RBW	Resolution bandwidth	VBW	Video bandwidth
OATS	Open area test site	FAR	Full anechoic room
RF	Radio frequency	NTR	Nothing to report
SRD	Short Range Device	GPS	Global Positioning System

2. REFERENCE DOCUMENT(S)

NORMATIVE REFERENCES:

The following referenced documents are necessary for the application of the present test report.

FCC 47 CFR PART 15: April 2020

Code of federal regulations – Title 47 telecommunication
Part 15- Radio frequency devices

KDB 447498 D01 v06

RF exposure procedures and equipment authorization policies for mobile and portable devices.

R120-20-105 636-1_A Ed.1

Radio Test Report Emitech.

Although the product standard uses obsolete technical standards, the latest versions of standards achievable by the laboratory will be used for testing.

3. EQUIPMENT TECHNICAL DESCRIPTION

3.1. Test Conditions

Test item description. : Connected glasses with Head Up Display
Model/Type reference..... : ISP4520-EU
Trade Mark. : Activelook
FCC ID..... : 2AY23-2001
IC. : 27140-2001
Serial number (S/N)..... : Not communicated
Part number (P/N). : Not communicated
Software version..... : Not communicated
Firmware version. : Not communicated
Type of sample. : Standard equipment
Function(s)..... : Data communication through Bluetooth Low Energy with a
smartphone.
Data display on a Head Up Display
Measurement of brightness and proximity sensors
Manufacturer name. : MICROOLED
Address..... : BHT2
17 rue Felix Esclangon
38000 GRENOBLE
FRANCE

General product information:

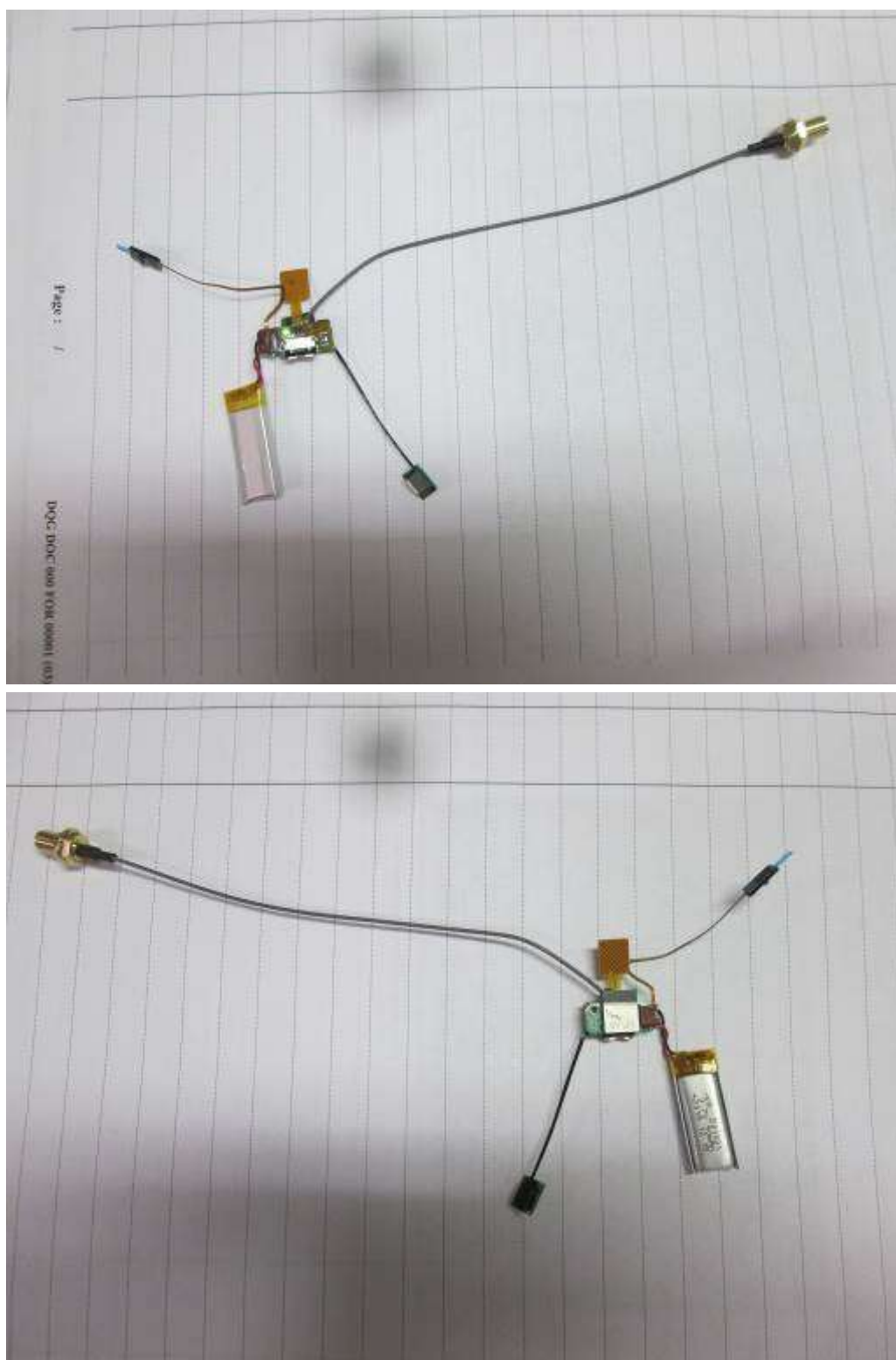
N/A

3.2. EUT General view





3.3. Internal view



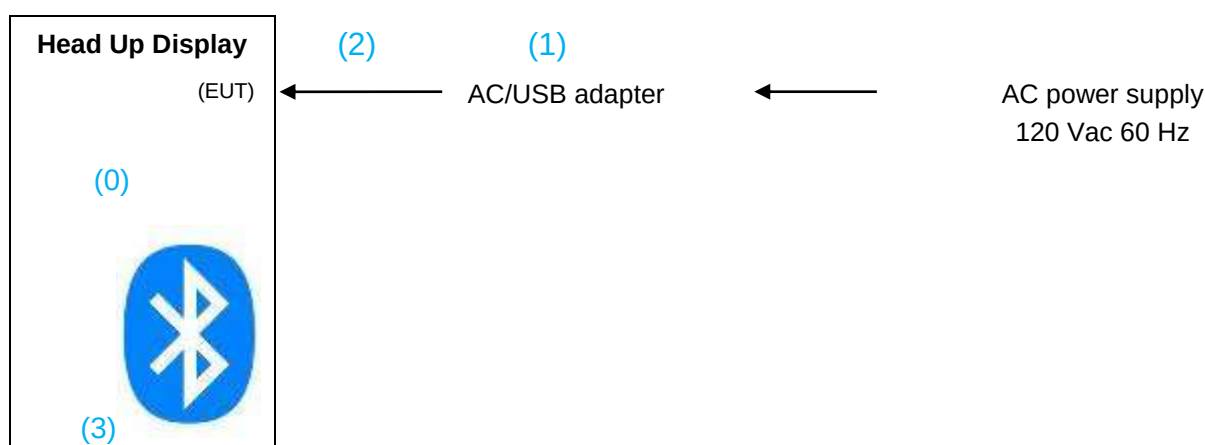
3.4. EUT Mechanical and Electrical Design

Power supply. : 3.7 Vdc (internal battery) charged by USB (5Vdc)
Power supply range. : 3.2Vdc to 4.2Vdc
Power type. : Battery
Power (W). : Not communicated
Nominal current (A). : Not communicated
Dimensions (L x W x H) (m). : 0.14x0.18x0.05
Weight (kg). : 00.025 / 0.035
Temperature range (°C). : -20 to +50
Ground bounding strap. : No

Comments:

N/A

3.5. EUT Input/Output ports



PORT	NAME	TYPE	LENGHT	CABLE TYPE	COMMENTS
0	Main frame	N/E	N/A	Plastic	
1	AC/USB adapter	AC/USB	N/A	Output : USB Input : 1 phase	Not provided by the manufacturer
2	USB cord	USB	0.5 m	USB	Provided by the manufacturer
3	RF antenna	RF	N/A	N/A	Internal

AC/DC : AC/DC Converter port

I/O.....: Input or Output port

N/E: Non Electrical port

AC.....: Alternative current port

TP: Telecommunication port

DC: Discontinuous current port

RF.....: Radio frequency port

3.6. Supporting Equipment Used During Test

Sample subject to the tests was tested with following equipment.

PRODUCT TYPE	MANUFACTURER	MODEL	N°EMITECH / COMMENTS
Smartphone AC/USB ADAPTER	SAMSUNG	Galaxy J6	Provided by the customer Provided by EMITECH

AC/USB ADAPTER (EA)



3.7. EUT Radio Specifications

a) GENERAL INFORMATIONS	
According to manufacturer's declarations :	
EUT type.....	: Transceiver
Technology	: BLE
Environmental profile.....	: Data transmission
Temperature range.....	: -20/+50 °C
Antenna type	: Integral
Antenna Gain.....	: 6dBi (Max)
Comments:	
N/A	
b) TRANSMITTER PARAMITERS (Tx)	
Frequency bands.....	: 2400 – 2483.5 MHz
RF Power.....	: 1mW max (standard value)
Number of channels / Separation.....	: 40 / 2MHz
Modulation type	: GFSK
Duty cycle	: N/C
Tested frequency.....	: 2402 MHz, 2426MHz, 2480 MHz (DSSS)
c) RECEIVER PARAMETERS (Rx)	
Frequency bands.....	: 2400 – 2483.5 MHz (DSSS)
Category/Class	: pointless
Bandwidth.....	: pointless

4. RESULT SUMMARY

TEST DESIGNATION	SEVERITY	VERDICT	BASIC STANDARDS / COMMENTS
SAR evaluation (exclusion consideration for handheld product 10-g) - Low channel - Mid channel - High channel	3.0 W/kg 3.0 W/kg 3.0 W/kg	PASS PASS PASS	KDB 447498 D01 v06 §4.3.1

5. RESULTS

5.1. SAR EVALUATION

Reference document:	KDB 447498 D01 v06
Calculation method:	KDB 447498 D01 v06 §4.3.1
General test setup (in test report R120-20-105 636-1_A Ed.1): It is acceptable to employ a different resolution bandwidth, and a correspondingly different peak emission limit, following the procedures described in §15.521. For $f > 1\text{GHz}$, EUT is set on an insulating support at 150cm above the ground reference plane. Measurements are performed in a semi-anechoic chamber. For portable equipments a research of maximum level is done on the 3 axes. Only the highest levels are recorded.	

TESTED CONFIGURATION	SAR VALUE	SEVERITY	VERDICT
Low channel (2402 MHz)	0.45 W/kg	3.0 W/kg	PASS
Mid channel (2426 MHz)	0.47 W/kg	3.0 W/kg	PASS
High channel (2480 MHz)	0.45 W/kg	3.0 W/kg	PASS

SAR EVALUATION			
TESTED CONFIGURATION	POWER (dBm)	POWER (mW)	SAR (W/kg)
Low channel (2402 MHz)	-1,84	0,65	0,45
Mid channel (2426 MHz)	-1,75	0,67	0,47
High channel (2480 MHz)	-1,98	0,63	0,45

The calculation of the SAR is done using the equation in §4.3.1 of the KDB KDB 447498 D01 v06 document for a minimum distance (5mm). The product is a remote control that could be set on the body. The evaluated value is compared to the 1-g limit (3.0 W/kg).

End of evaluation report