TEST REPORT
Nr. R22008701

Federal Communication Commission (FCC)

Report Reference No. .....:	R22008701
Date of issue: .....:	08.03.2023
Total number pages: .....:	16
Customer name .....:	Microgate S.r.l.
Address .....:	Via Waltraud Gebert Deeg, 3e – 39100 Bolzano (BZ) – Italy
Test specification:	
Standards .....:	KDB 447498 D01 General RF Exposure Guidance v06
Non-standard test method .....:	N/A
Test Report Form No. .....:	SAR_exemptionDEKRA
Test Report Form(s) Originator ...:	DEKRA Testing and Certification S.r.l.
Master TRF .....:	2022-06

General disclaimer:

The test results presented in this report relate only to the object tested.
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(*) Test item description .....:	WITTYPRO TAB – Display Board
(*) Trademark .....:	Microgate
(*) Manufacturer .....:	Microgate S.r.l.
(*) Model / Type reference .....:	WIT204
(*) FCC ID .....:	2ADEOWIT204
(*) Rating(s) .....:	12 Vdc from battery

Report

Tested by (name + signature) .....:	M. Segalla	.....
Approved by (name + signature) .....:	F. Marenda	.....

(*) information provided by the customer

1 Summary

2 Reference standard	
KDB 447498 D01 General RF Exposure Guidance v06	RF exposure procedures and equipment authorization policies for mobile and portable devices
3 List of attachments	
Attachment 1: Instruments list, measurement uncertainty, judgement of compliance and quality manual references	
4 Deviation(s) from test specification	
None	
5 Testing location	
DEKRA Testing and Certification S.r.l. Via della Fisica, 20 – 36016 Thiene (VI) – Italy Test site facility's FCC registration number: 182474	

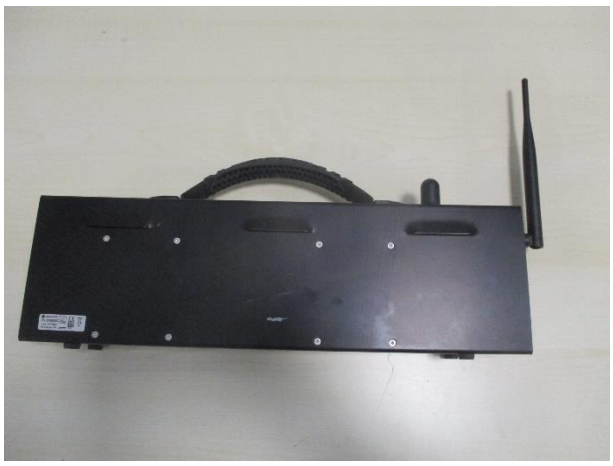
Revision index	***Date***	***Change history***
1.0	08.03.2023	--

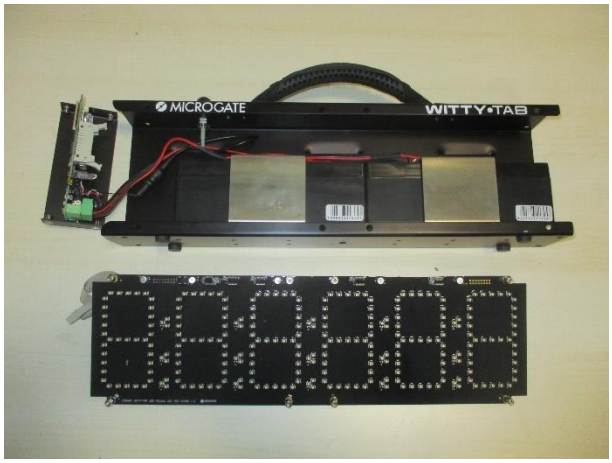
Testing and sampling:	
Date of receipt of test item .....:	12.01.2022
Testing start date .....:	08.03.2023
Testing end date .....:	08.03.2023
Sampling procedure .....:	Sample used for testing chosen by the customer; DEKRA Testing and Certification S.r.l. cannot be considered responsible for the selection of the sample
Internal identification .....:	Adhesive label with the product number P220030
General remarks:	
This report shall not be reproduced, except in full, without the written approval of DEKRA Testing and Certification S.r.l. The test results presented in this report relate only to the object tested. “(see appended table)": refers to a table appended to the report. Throughout this report a comma is used as the decimal separator.	
Possible test case verdicts:	
Test case does not apply to the test object:	N/A (Not Applicable)
Test object does meet the requirement:	P (Pass)
Test object does not meet the requirement:	F (Fail)
Test object does not performed:	N/E (Not Executed)
Definition of symbols used in this test report:	
☒ Indicates that the listed condition, standard or equipment is applicable for this report. ☐ Indicates that the listed condition, standard or equipment is not applicable for this report.	

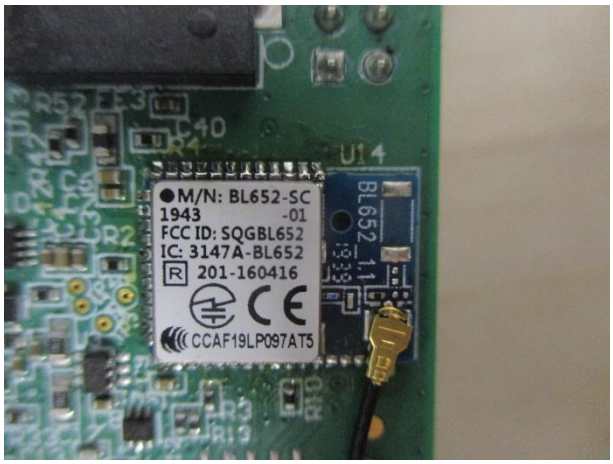
6 General description of test item(s)

Description ..... :	WITTYPRO TAB – Display Board						
Model Number ..... :	WIT204						
FCC ID ..... :	2ADEOWIT204						
Serial Number ..... :	000003						
Brand name ..... :	Microgate						
Nominal frequency ..... :	F_L: 433,3125 MHz		F_H: 434,7125 MHz				
Rated power supply ..... :		Voltage and Frequency	Reference poles				
			N	L1	L2	L3	PE
	☐	AC:	☐	☐	☐	☐	☐
	☐	AC:	☐	☐	☐	☐	☐
	☒	DC: 12 V from battery					☐
Type of equipment ..... :	☑ Transmitter unit ☑ Receiver unit						
Type of station ..... :	❑ Portable station ☑ Mobile station						
Software version ..... :	Bootloader version 2.0.2 Application version 2.0.22						
Test arrangements of EUT ..... :	*Intended operational arrangement(s) of EUT*		*Test arrangement (see basic standard)*				
	❑ Table-top only		Table-top				
	❑ Floor-standing only		Floor-standing				
	❑ Can be floor-standing or table-top		Table-top				
	❑ Rack mounted		In rack or table-top				
	☑ Other, for example wall mounted, ceiling mounted, handheld, body worn		Table-top				
Operating modes ..... :	No.	Operating mode of test item					
	1	EUT in continuous transmission at maximum power					
Declination of responsibility ..... :	Information relating to the description of the sample, components list and software/hardware version (if reported) are provided by the customer. DEKRA Testing and Certification S.r.l. cannot be considered responsible for these information, for any other document sent by the customer and for any difference between the software version present in the tested sample and that present in the object intended for final sale. In some cases, the software in the tested sample is in a version dedicated exclusively to the test, and therefore does not represent the software installed in the final version of the product.						

6.1 Photos of the test item






M/N: BL652-SC
1943 -01
FCC ID: SQGBL652
IC: 3147A-BL652
201-160416
CCAF19LP097AT5


CIRCUIT DESIGN, INC.
STD-601
FREQ.:434MHz (B)
S/N: B0001983
MADE IN JAPAN


CIRCUIT DESIGN, INC.
STD-601
FREQ.:434MHz (B)
S/N: B0001983


CAUTION:
ATTENTION:


FIT MAINS INPUT PLUG BEFORE USE
CAUTION:
RISK OF ELECTRICAL SHOCK
DRY LOCATION USE ONLY
ATTENTION:
RISQUE DE CHOC ÉLECTRIQUE
POUR ENDROIT SEC SEULEMENT

7 Verdict summary section

KDB 447498 D01 General RF Exposure Guidance v06			
Clause	**Requirement – Test case**	**Basic standard**	**Verdict**
7.1	RF Exposure Analysis	--	**P**

Normative references	
Reference no.	***Description***
KDB 447498 D01 General RF Exposure Guidance v06	RF exposure procedures and equipment authorization policies for mobile and portable devices

8 Test conditions

8.1 General

<table>
<tr><td rowspan="4">Environmental reference conditions.....:</td><td colspan="3">The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment.
The climatic conditions during the tests were within the following limits:</td></tr>
<tr><td>Temperature</td><td>Humidity</td><td>Atmospheric pressure</td></tr>
<tr><td>15 °C – 35 °C</td><td>30 % - 60 %</td><td>800 hPa – 1060 hPa</td></tr>
<tr><td colspan="3">If explicitly required in the basic standard or applied product standard the climatic values are recorded and documented separately in this test report.</td></tr>
<tr><td>Measurement uncertainties .....:</td><td colspan="3">Attachment 1</td></tr>
</table>

9 Test results

9.1 RF Exposure Analysis

Tested by .....:	M. Segalla
Test date .....:	08.03.2023
Test location (stand) .....:	Laboratory
Reference standards.....:	KDB 447498 D01 cl. 4 ANSI C63.10
Supplementary information .....:	--

Acceptance limits
For mobile devices operating at frequency f between 300 kHz and 6 GHz the power density limit at 20 cm is f(MHz)/1500 mW/cm^2 according to FCC Part 1.1310(e)(1) Table 1

Results

Transmission channel (MHz)	*Measured level (dBµV/m)*	*Peak Output Power (mW)*	*Power Density at 20 cm (mW/cm^2)*	*Power Density Limit (mW/cm^2)*
433,3125	79,03	0,787	0,00020	0,289
434,7125	79,19	0,816	0,00020	0,290

Remarks
P = (E x d)^2/ (30 x G) x 1000
Where:
E = the measured maximum fundamental field strength in V/m
G = the numeric gain of the transmitting antenna: 0,339 (-4,70 dBi)
d = the distance in meters from which the field strength was measured (10 m)
P = the power in mW
Power Density = (P x G) / (4πR^2)

Attachment 1

Instruments list

Id. number	*Manufacturer*	*Model*	*Description*	*Serial number*	*Last calibration*	*Due date calibration*
CMC S353	Rohde & Schwarz	ESW26	Emi Test Receiver 1 Hz - 26.5 GHz	101492	September '20	September '22

Attachment 1

Measurement uncertainty

Test	*Test Setup*	*Expanded uncertainty*	*Note*
Conducted emission CISPR 16 LISN 50uH 0,009-0,0150 MHz	PE001_01	3,4 dB	1
Conducted emission CISPR 16 LISN 50uH 0,150-30,0 MHz	PE001_01	3,0 dB	1
Conducted emission CISPR 16 Voltage Probe 0,15-30 MHz	PE001_02	2,3 dB	1
Conducted emission CISPR 16 Current Probe 0,15-30 MHz	PE001_03	2,6 dB	1
Conducted emission CISPR 16 ISN 0,15-30 MHz	PE001_04	4,7 dB	1
Clic CISPR 16 LISN 50uH 0,150-30,0 MHz	PE001_05	2,9 dB	1
Radiated Emission CDNE 30-300 MHz	PE001_06	3,3 dB	1
Disturbance Power 30-300 MHz	PE002_01	3,8 dB	1
Radiated Emission LAS 0,15-30 MHz	PE003_01	2,0 dB	1
Radiated Emission CISPR 16 Loop Ant. 0,15-30 MHz	PE004_01	4,1 dB	1
Radiated Emission CISPR 16 Bicon. Ant. 30-300 MHz	PE004_02	4,7 dB	1
Radiated Emission CISPR 16 LogP. Ant. 300-1000 MHz	PE004_03	4,6 dB	1
Radiated Emission CISPR 16 Horn Ant. 1-18 GHz	PE004_04	4,7 dB	1
Human Exposure to electromagnetic fields	PE005_01	16,7 %	1
Harmonics	PE006_01	10 mA + 2,9 %	1
Flicker	PE007_01	4,15 %	1
Radiated Immunity 80 MHz - 6 GHz	PE102_XX	2,20 dB 0,86 V/m a 3V/m	1
Conducted Immunity 0,15 - 230 MHz	PE105_XX	1,20 dB 0,44 V a 3V	1
AC Magnetic field	PE106_01	1,55 % 0,15 A/m a 10A/m	1
Pulse Magnetic field	PE107_01	6,23 % 18,7 A/m a 300A/m	1
Dumped Magnetic field	PE108_01	6,23 % 1,87 A/m a 30A/m	1
Common mode conducted immunity	PE112_01	2,16 % 0,22 V a 10V	1

Attachment 1

Test	*Test Setup*	*Expanded uncertainty*	*Note*
Power/Spurious 9kHz-30MHz	PR001_01	4,1 dB	1
Power/Spurious ERP 30-1000MHz d=10m	PR001_02+03	4,7 dB	1
Misura della potenza EiRP 1-18GHz d=3m	PR001_04+05	4,7 dB	1
Misura della potenza EiRP 18-40GHz d=3m	PR001_06	5,4 dB	1
Frequency error	PR002_01+02	< 1x10-7	1
Timing zero span (1001pts.)	PR002_01+02	0,2 % SWT	1
Modulation bandwidth	PR002_01+02	< 1x10-7	1
Conducted RF power and spurious emission	PR002_01+02	1,1 dB	1
Adjacent channel power	PR002_01+02	1,1 dB	1
Blocking	PR002_01+02	1,1 dB	1

Test	*Test Setup*	*Expanded uncertainty*	*Note*
Electrostatic discharge immunity test	PE101_0X		2
Electrical fast transients / burst immunity test	PE103_0X		2
Surge immunity test	PE104_0X		2
Short interruption immunity test	PE109_01		2
Ring Wave immunity test	PE110_01		2
Low frequency immunity test	PE111_01		2
Dumped Oscillotary immunity test	PE113_01		2
Rev_22_01 date 31/01/2022			

Note 1:

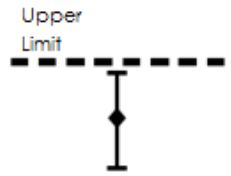
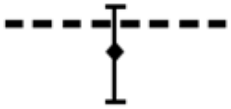
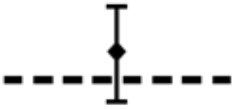
The expanded uncertainty reported according to the document EA-4-02 is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of p = 95%

Note 2:

It has been demonstrated that the used test equipment meets the specified requirements in the standard with at least a 95% confidence, covering factor k=2

Attachment 1

Judgement of compliance

Case 1	Case 2	Case 3	Case 4
			
The sample complies with the requirements. The measurement results is within the specification limit when the measurement uncertainty is taken into account.	The sample complies with the requirements. It is not possible to state compliance using a 95% coverage probability for the expanded uncertainty although the measurement result is below the limit.	The sample does not comply with the requirements. It is not possible to state compliance using a 95% coverage probability for the expanded uncertainty also the measurement result is upper the limit.	The sample does not comply with the requirements. The measurement results is outside the specification limit when the measurement uncertainty is taken into account.

In agreement with ILAC-G8:09/2019 cl.4.2.1 Guidelines on Decision Rules and Statements of Conformity

Quality manual references – Internal procedure

Internal Procedure PM001 rev. 4.0 (Quality Manual)	Measure procedure
Internal Procedure INC_M rev. 10.0 (Quality Manual)	Measurement uncertainty calculation