



Test report issued under the responsibility of:
EMITECH MONTPELLIER laboratory
MRA US-EU Designation Number: FR0006
Canadian CAB Identifier: FR0003

EMF TEST REPORT

KDB 447498 D01 V06

Company : **ETS GEORGES RENAULT**
Address..... : 38 RUE BOBBY SANDS
44800 SAINT HERBLAIN
FRANCE

Test item description. : **Tools tracker**
Trade Mark. : DESOUTTER
Manufacturer..... : ETS GEORGES RENAULT
Model/Product/Type reference. : 615919149005 / TRACKER-EABS / 6158134150
FCC ID...... : 2APE2-TRACKER2
IC. : 24012-TRACKER2
Ratings..... : Not communicated

Testing Laboratory : **EMITECH MONTPELLIER laboratory**
Address..... : 145 rue de Massacan
34740 VENDARGUES
FRANCE

Report Reference No...... : **RE410-21-100495-1A**
Test procedure. : FCC IC Certification
Diffusion..... : MR BUTON MANUEL
Applicant's name. : ETS GEORGES RENAULT
Date of issue..... : September 21, 2021
Total number of pages..... : 13
Revision. : 0
Modified page(s)..... : Creation
Compiled by..... : Morgan PATEY
Approved by (+ signature). : Olivier HEYER (Laboratory Manager)

*Duplication of this test report is only permitted for an integral photographic facsimile. It includes the number of pages referenced here above.
This document is the result of testing a specimen or a sample of the product submitted. It does not imply an assessment of the conformity of
the whole manufactured products of the tested sample.*

REPORT INDEX:

1. GENERAL INFORMATIONS	3
2. REFERENCE DOCUMENT(S)	4
3. EQUIPMENT TECHNICAL DESCRIPTION	5
3.1. TEST CONDITIONS	5
3.2. EUT MARKING PLATE	5
3.3. EUT GENERAL VIEW	6
3.4. EUT MECHANICAL AND ELECTRICAL DESIGN	7
3.5. EUT INPUT/OUTPUT PORTS	7
3.6. SUPPORTING EQUIPMENT USED DURING TEST	7
3.7. EUT RADIO SPECIFICATIONS	9
4. RESULT SUMMARY	9
5. RESULTS	10
5.1. SAR EVALUATION	10
5.2. TRANSMISSION TIME	ERREUR ! SIGNET NON DEFINI.
5.3. RADIATED SPURIOUS EMISSIONS	ERREUR ! SIGNET NON DEFINI.
5.4. MAXIMUM PEAK OUTPUT POWER OF UWB DEVICE	ERREUR ! SIGNET NON DEFINI.

REVISION HISTORY:

Revision	Date	Modified pages	Modifications
0	September 21, 2021	/	Creation

1. GENERAL INFORMATIONS

This document submits the results of Radio tests performed on the equipment **TRACKER-EABS 6158134150** (denominated hereafter E.U.T.: equipment under test) according to document(s) listed in §2 of this test report.

TESTING PROCEDURE AND TESTING LOCATION:					
Testing Location : EMITECH MONTPELLIER laboratory Address. : 145 rue de Massacan 34740 VENDARGUES FRANCE Test procedure. : FCC IC Certification Tested by : Morgan PATEY Test supervisor : None Date of receipt of test item : N/A Date (s) of performance of tests : From April the 1 st to 6 th of 2021					
APPLICANT'S GENERAL INFORMATIONS:					
Company name : ETS GEORGES RENAULT Company address. : 38 RUE BOBBY SANDS 44800 SAINT HERBLAIN FRANCE Person(s) present during the tests. : No representative for company attended the tests. Responsible. : MR BUTON MANUEL					
GENERAL REMARKS:					
The information in <i>italics</i> is declared by the manufacturer and is under his responsibility The test results presented in this report relate only to the object tested. The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report. "(see Enclosure #)" refers to additional information appended to the report. "(see appended table)" refers to a table appended to the report. Throughout this report the decimal separator is point.					
POSSIBLE TEST CASE VERDICTS:					
Test case does not apply to the test object.: N/A Test case not performed.....: N/P Test object does meet the requirement.....: P (Pass) Test object does not meet the requirement.: F (Fail)					
DEFINITIONS AND ABBREVIATIONS:					
E.U.T.	Equipment under test	AE	Ancillary equipment	Pk	Peak detector
RBW	Resolution bandwidth	VBW	Video bandwidth	QP	Quasi-peak detector
OATS	Open area test site	FAR	Full anechoic room	Av	Average detector
VP	Vertical Polarization	HP	Horizontal Polarization	RMS	Root Mean Square
RF	Radio frequency	NTR	Nothing to report	N/C	Not communicated

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.

RR410-21-100495-1A Ed.0

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.

INFORMATIVE REFERENCES:

The following referenced documents are not necessary for the application of the present test report but they assist the user with regard to a particular subject area.

3. EQUIPMENT TECHNICAL DESCRIPTION

3.1. Test Conditions

Test item description. :	Tools tracker
Model/Product/Type reference. :	615919149005 / TRACKER-EABS / 6158134150
Trade Mark. :	DESOUTTER
FCC ID..... :	2APE2-TRACKER2
IC. :	24012-TRACKER2
Serial number (S/N)..... :	Not communicated
Part number (P/N). :	Not communicated
Software version..... :	N/A
Firmware version. :	2.3.30
Type of sample. :	Prototype
Function(s)..... :	Tracker EABS is an equipment use to accessorize a battery screwdriver. The power is supply by the tool itself with a 5V DC connector. When Tracker EABS is on, it communicates with a Tracking Base (FCC ID : 2APE2-TRACKBASE). Signal exchange between Tracker and Tracking base allow to measure distance between them.
Manufacturer name. :	ETS GEORGES RENAULT
Address. :	38 RUE BOBBY SANDS 44800 SAINT HERBLAIN
General product information:	
N/A	

3.2. EUT Marking plate

Not communicated

3.3.EUT General view



The red holder is not part of the EUT.

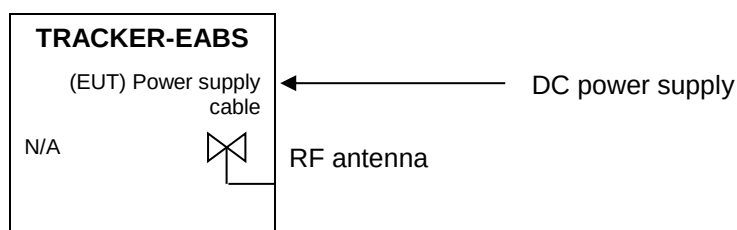
3.4. EUT Mechanical and Electrical Design

Power supply. : 5 VDC
 Power supply range..... : Not communicated
 Power type..... : Battery powered
 Power (W)..... : 2.5
 Nominal current (A). : 0.5
 Dimensions (L x W x H) (m). : 0.07 x 0.03 x 0.015
 Weight (kg). : 0.02
 Temperature range (°C). : 0 to +45
 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	N/A
1	DC power supply	DC	N/C	Not shielded	5 VDC from EA
2	RF antenna	RF	N/A	N/A	3100 MHz to 10600 MHz

AC/DC: AC/DC Converter port AC: Alternative current port DC: Discontinuous current port
 I/O: Input or Output port TP: Telecommunication port RF: Radio frequency port
 N/E: Non Electrical 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
External power bank	RS	Not communicated	5 VDC

EXTERNAL POWER BANK (EA)



3.7. EUT Radio Specifications

a) GENERAL INFORMATIONS	
According to manufacturer's declarations :	
EUT type.....	Transceiver
Technology	UWB
Environmental profile.....	Data transmissions
Temperature range.....	Category III (Indoor) (0°C to +45°C)
Antenna type	Integrated
Antenna Gain.....	Not communicated
Comments:	
N/A	
b) TRANSMITTER PARAMETERS (Tx)	
Frequency bands.....	3.5GHz to 6.5GHz
RF Power.....	<0dBm EIRP
Number of channels / Separation.....	6 (channel 1, 2, 3, 4, 5, 7)
Modulation type	BPM-BPSK
Duty cycle	0.5% (calculation method : 128 slots of 0.5ms = 64ms. On each slot, emission is around 0.3ms. $0.3/64 \times 100 = \sim 0.5\%$)
Tested frequency.....	3494.4 MHz (channel 1) 4492.8 MHz (channel 3) 6489.6 MHz (channel 5)
c) RECEIVER PARAMETERS (Rx)	
Frequency bands.....	3.5GHz to 6.5GHz
Category/Class	Not communicated
Bandwidth.....	according IEEE802.15.4-2011 UWB compliant

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 - Channel 2 - Channel 4 - Channel 7	7.5 w/kg 7.5 w/kg 7.5 w/kg 7.5 w/kg 7.5 w/kg 7.5 w/kg	PASS PASS PASS PASS PASS PASS	KDB 447498 D01 v06 §4.3.1

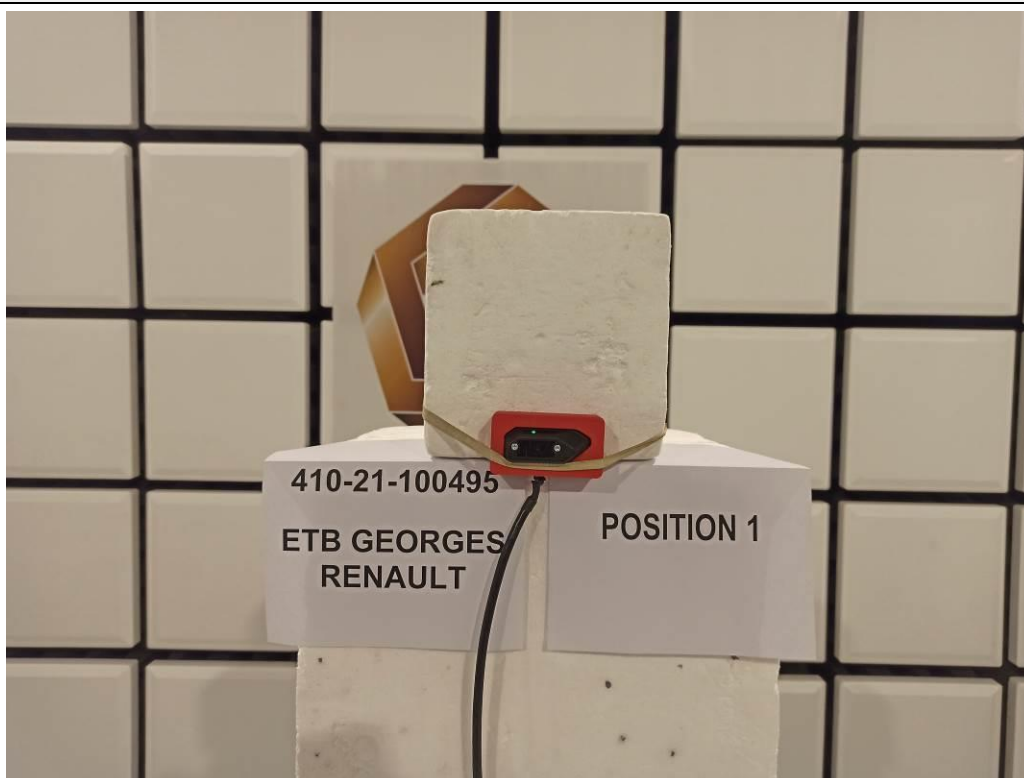
5. RESULTS

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 RR410-21-100495-1A Ed.0): There is a limit on the peak level of the emissions contained within a 50 MHz bandwidth centered on the frequency at which the highest radiated emission occurs, f_M. That limit is 0 dBm EIRP. 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 at 1m test distance in order to optimise measurement dynamic. For portable equipments a research of maximum level is done on the 3 axes. Only the highest levels are recorded.	

TESTED CONFIGURATION	PARAMETER	SEVERITY	VERDICT
Low channel Channel 1 / Position 1	3.2444GHz-3.7444GHz	7.5 W/kg	PASS
Low channel Channel 1 / Position 2	3.2444GHz-3.7444GHz	7.5 W/kg	PASS
Low channel Channel 1 / Position 3	3.2444GHz-3.7444GHz	7.5 W/kg	PASS
Mid channel Channel 3 / Position 1	4.2428GHz-4.7428GHz	7.5 W/kg	PASS
Mid channel Channel 3 / Position 2	4.2428GHz-4.7428GHz	7.5 W/kg	PASS
Mid channel Channel 3 / Position 3	4.2428GHz-4.7428GHz	7.5 W/kg	PASS
High channel Channel 5 / Position 1	6.2396GHz-6.7396GHz	7.5 W/kg	PASS
High channel Channel 5 / Position 2	6.2396GHz-6.7396GHz	7.5 W/kg	PASS
High channel Channel 5 / Position 3	6.2396GHz-6.7396GHz	7.5 W/kg	PASS
Channel 2 / Position 1	3.5GHz-4.5GHz	7.5 W/kg	PASS
Channel 2 / Position 2	3.5GHz-4.5GHz	7.5 W/kg	PASS
Channel 2 / Position 3	3.5GHz-4.5GHz	7.5 W/kg	PASS
Channel 4 / Position 1	3GHz-5GHz	7.5 W/kg	PASS
Channel 4 / Position 2	3GHz-5GHz	7.5 W/kg	PASS
Channel 4 / Position 3	3GHz-5GHz	7.5 W/kg	PASS
Channel 7 / Position 1	5.5GHz-7.5GHz	7.5 W/kg	PASS
Channel 7 / Position 2	5.5GHz-7.5GHz	7.5 W/kg	PASS
Channel 7 / Position 3	5.5GHz-7.5GHz	7.5 W/kg	PASS

TEST SETUP PHOTO(S) - MAXIMUM PEAK OUTPUT POWER OF UWB DEVICE / POSITION 1



TEST SETUP PHOTO(S) - MAXIMUM PEAK OUTPUT POWER OF UWB DEVICE / POSITION 2



TEST SETUP PHOTO(S) - MAXIMUM PEAK OUTPUT POWER OF UWB DEVICE / POSITION 3



TEST SETUP PHOTO(S) - MAXIMUM PEAK OUTPUT POWER OF UWB DEVICE



SAR EVALUATION			
TESTED CONFIGURATION	POWER (dBm)	POWER (mW)	SAR (W/kg)
Low channel Channel 1 / Position 1	-1,97	0,64	0,24
Low channel Channel 1 / Position 2	-0,45	0,90	0,34
Low channel Channel 1 / Position 3	-3,54	0,44	0,17
Mid channel Channel 3 / Position 1	-0,47	0,90	0,38
Mid channel Channel 3 / Position 2	-0,02	1,00	0,42
Mid channel Channel 3 / Position 3	-0,72	0,85	0,36
High channel Channel 5 / Position 1	-1,46	0,71	0,36
High channel Channel 5 / Position 2	-2,69	0,54	0,27
High channel Channel 5 / Position 3	-4,45	0,36	0,18
Channel 2 / Position 1	-2	0,63	0,26
Channel 2 / Position 2	-0,13	0,97	0,40
Channel 2 / Position 3	-1	0,79	0,33
Channel 4 / Position 1	-0,97	0,80	0,33
Channel 4 / Position 2	-1,44	0,72	0,29
Channel 4 / Position 3	-1,38	0,73	0,30
Channel 7 / Position 1	-1,04	0,79	0,40
Channel 7 / Position 2	-0,43	0,91	0,46
Channel 7 / Position 3	-1,71	0,67	0,34

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 being hand-held, the evaluated value is compared to the 10-g limit (7.5 W/kg).

For frequencies above 6 GHz (channels 5 and 7), the same equation is used for information.

End of evaluation report