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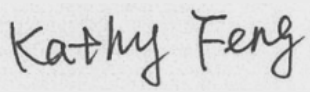
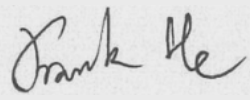
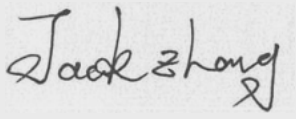
Test report No:
1932207R-RF-US-P20V01

TEST REPORT
SAR Exemption Evaluation Report

Product Name	TRK230;TRK210;MOBIAM
Trademark	Accent Systems
Model and /or type reference	TRK230;TRK210;MOBIAM
Applicant´s name / address	Accent Advanced Systems SLU Terra Alta 1-3 Castellar del Valles, Barcelona
Test method requested, standard	KDB 447498D01V06 FCC Part1.1310
Verdict Summary	IN COMPLIANCE
Documented By	Kathy Feng/Project Assistant 
Tested by (name / position & signature)	Frank He/ Technical Supervisor 
Approved by (name / position & signature)	Jack Zhang/ Supervisor 
Date of issue	2019-11-08
Report template No	1932207R-RF-US-P20V02

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COMPETENCES AND GUARANTEES

DEKRA is a testing laboratory competent to carry out the tests described in this report.
In order to assure the traceability to other national and international laboratories, DEKRA has a calibration and maintenance program for its measurement equipment.

DEKRA guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated in the report and it is based on the knowledge and technical facilities available at DEKRA at the time of performance of the test.

DEKRA is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

GENERAL CONDITIONS

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or Competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA.

ENVIRONMENTAL CONDITIONS

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:

Ambient temperature	15 °C – 35 °C
Relative Humidity air	30% - 60%

If explicitly required in the basic standard or applied product / product family standard the climatic values are recorded and documented separately in this test report.

POSSIBLE TEST CASE VERDICTS

Test case does not apply to test object	N/A
Test object does meet requirement	P (Pass) / PASS
Test object does not meet requirement	F (Fail) / FAIL
Not measured	N/M

ABBREVIATIONS

For the purposes of the present document, the following abbreviations apply:

EUT	:	Equipment Under Test
QP	:	Quasi-Peak
CAV	:	CISPR Average
AV	:	Average
CDN	:	Coupling Decoupling Network
SAC	:	Semi-Anechoic Chamber
OATS	:	Open Area Test Site
BW	:	Bandwidth
AM	:	Amplitude Modulation
PM	:	Pulse Modulation
HCP	:	Horizontal Coupling Plane
VCP	:	Vertical Coupling Plane
U_N	:	Nominal voltage
*T*x	:	Transmitter
*R*x	:	Receiver
N/A	:	Not Applicable
N/M	:	Not Measured

DOCUMENT HISTORY

Report No.	Version	Description	Issued Date
1932207R-RF-US-P20V02	V1.0	Initial issue of report.	2019-06-25
1932207R-RF-US-P20V02	V1.1	Description details of duty cycle	2019-10-23
1932207R-RF-US-P20V02	V1.2	Add duty cycle plot	2019-11-08

REMARKS AND COMMENTS

1. The equipment under test (EUT) does meet the essential requirements of the stated standard(s)/test(s).
2. These test results on a sample of the device are for the purpose of demonstrating Compliance with KDB 447498 and FCC Part 1.1310
3. The measurement result is considered in conformance with the requirement if it is within the prescribed limit, It is not necessary to account the uncertainty associated with the measurement result, unless the specification, standard or customer have special requirements
4. The test results relate only to the samples tested.
5. The test report shall not be reproduced without the written approval of DEKRA Testing and Certification (Suzhou) Co., Ltd.
6. This report will not be used for social proof function in China market.

1. RF Exposure Evaluation

1.1. Limits

According to **KDB 447498 D01 General RF Exposure Guidance v06**

4.3.1 Standalone SAR test exclusion considerations

1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR,where

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 5) in section 4.1 is applied to determine SAR test exclusion.

2) At 100 MHz to 6 GHz and for test separation distances > 50 mm, the SAR test exclusion threshold is determined according to the following, and as illustrated in Appendix B:
a) [Power allowed at numeric threshold for 50 mm in step 1) + (test separation distance - 50 mm)·(f(MHz)/150)] mW, at 100 MHz to 1500 MHz
b) [Power allowed at numeric threshold for 50 mm in step 1) + (test separation distance - 50 mm)·10] mW at > 1500 MHz and ≤ 6 GHz

3) The 1-g and 10-g SAR test exclusion thresholds for below 100 MHz at test separation distances ≤ 50 mm are determined by:
a) The power threshold at the corresponding test separation distance at 100 MHz in step 2) is multiplied by [1 + log(100/f(MHz))] for test separation distances > 50 mm and < 200 mm
b) The power threshold determined by the equation in a) for 50 mm and 100 MHz is multiplied by ½ for test separation distances ≤ 50 mm
c) SAR measurement procedures are not established below 100 MHz. When SAR test exclusion cannot be applied, a KDB inquiry is required to determine SAR evaluation requirements for any test results to be acceptable.
Note: when the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

1.2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

The temperature and related humidity: 18℃and 78％ RH.

1. To transmit the location information through WWAN in a fixed time interval from 8 minutes up to 1440minutes (refer to Sec 5 in user manual) and 20 second duration for each transmission(refer to Sec 6 in user manual). The rest time are in flight mode without transmission.

Duty cycle=20/480=0.041

Out put power based upon duty cycle

1.3. Conducted Power

Product	:	TRK230;TRK210;MOBIAM
Test Item	:	Conducted Power
Test Site	:	AC-6

Test mode	Time-average maximum tune up procedure (dBm)	Division Factors(dB)	Frame-Average Power(dBm)
GSM850	33	-9.03	23.97
PCS1900	30	-9.03	20.97

Test Mode	Conducted Power (dBm)
GSM850	23.97
PCS1900	20.97
LTE Band 2	24
LTE Band 4	23
LTE Band 5	24
LTE Band 12	24
LTE Band 13	24
LTE Band 25	24
BLE	-0.587

1.4. Duty Cycle

To transmit the location information through WWAN in a fixed time interval from 8 minutes up to 1440minutes (refer to Sec 5 in user manual) and 20 second duration for each transmission(refer to Sec 6 in user manual). The rest time are in flight mode without transmission.

Product	:	TRK230;TRK210;MOBIAM
Test Item	:	Duty Cycle
Test Site	:	AC-6

Duty Cycle=on/(on+off)=19.58/512.78=0.038

The measured duty cycle from real connecting to local network with the representative frequency band operating in the regional carrier of lab location is 19.58 Sec transmitting time and 493.2 Sec in flight mode. The worst case is the 20sec transmitting time and 8 minutes in flight mode based on the setting in user manual. So that the duty factor in below calculation is based on worst case 20sec on per 8 minutes.

Duty Cycle=on/(on+off)=20/500=0.04

The Maximum transmit power for any supported band as below:

Test Mode	Conducted Power (dBm)	Conducted Power (mw)
GSM850	23.97	249.46
PCS1900	20.97	125.03
LTE Band 2	24	251.19
LTE Band 4	23	199.53
LTE Band 5	24	251.19
LTE Band 12	24	251.19
LTE Band 13	24	251.19
LTE Band 26	24	251.19

Scaling the output power based upon duty cycle as below

Test Mode	Conducted Power (dBm)	Conducted Power (mw)	Duty Cycle	Pmax (mw)
GSM850	23.97	249.46	0.04	9.98
PCS1900	20.97	125.03	0.04	5.00
LTE Band 2	24	251.19	0.04	10.05
LTE Band 4	23	199.53	0.04	7.98
LTE Band 5	24	251.19	0.04	10.05
LTE Band 12	24	251.19	0.04	10.05
LTE Band 13	24	251.19	0.04	10.05
LTE Band 26	24	251.19	0.04	10.05

Note: Pmax(mw) = Conducted Power (mw) * Duty Cycle

1.5. Test Result of RF Exposure Evaluation

Product	:	TRK230;TRK210;MOBIAM
Test Item	:	RF Exposure Evaluation
Test Site	:	AC-6

Based on The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm and the formula below:

$$\sqrt{f(GHz)} * \frac{(\text{Max Power of channel, mW})}{\text{Min. Separation Distance, mm}}$$

Standalone：

Band	Exposure Condition	Pmax (mw)	Distance (mm)	f(GHz)	calculation result	Stand-alone Test exclusion threshold	SAR Test
GSM850	Body	9.98	5	0.848	1.84	3.00	No
PCS1900	Body	5.00	5	1.8502	1.36	3.00	No
LTE Band 2	Body	10.05	5	1.9085	2.78	3.00	No
LTE Band 4	Body	7.98	5	1.715	2.09	3.00	No
LTE Band 5	Body	10.05	5	0.8475	1.85	3.00	No
LTE Band 12	Body	10.05	5	0.7005	1.68	3.00	No
LTE Band 13	Body	10.05	5	0.7845	1.78	3.00	No
LTE Band 26	Body	10.05	5	0.8465	1.85	3.00	No
BLE	Body	3.27	5	2.402	1.01	3.00	No

Note:
1. The BLE is configured to be in navigation mode. The BLE is mainly scanning nearby beacons, so is in RX and switching to TX(Advertising).
2. The WiFi only setted in client mode, scanning nearby wifi networks to have location information.so the wifi exposure is not required

Simultaneous：

Band	Exposure Condition	Pmax (mw)	Distance (mm)	f(GHz)	Simultaneous calculation result	Simultaneous Test exclusion threshold	SAR Test
LTE Band 2	Body	10.05	5	1.9085	0.51	1.6	No
BLE	Body	3.05	5	2.402			

The End