RF Test Report

FCC ID: 2AVE6TG4XL

Change II

Report No.	:	TBR-C-202406-0055-122
Applicant	:	Tractive GmbH
Equipment Under Test (EUT)		
EUT Name	:	Tractive DOG XL
Model No.	:	TG4XL
Series Model No.	:	----
Brand Name	:	Tractive
Sample ID	:	HC-C-202406-0055-01-01-1#&HC-C-202406-0055-01-01-2#
Receipt Date	:	2024-07-08
Test Date	:	2024-07-08 to 2024-07-19
Issue Date	:	2024-07-25
Standards	:	47 CFR Part 2, 22(H), 24(E), 27
Test Method	:	ANSI C63.26 2015
Conclusions	:	**PASS**

In the configuration tested, the EUT complied with the standards specified above.

Test By	:	Mike Yan
Reviewed By	:	Wade. Lv
Approved By	:	IVAN SU

Mike Yan

Wade. Lv

Ivan Su

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.

Contents

Revision History

Report No.	Version	Description	Issued Date
TBR-C-202406-0055-122	Rev.01	Initial issue of report	2024-07-25

1. General Information about EUT

1.1 Client Information

Applicant	:	Tractive GmbH
Address	:	Poststrasse 4, 4061 Pasching, AUSTRIA
Manufacturer	:	Tractive GmbH
Address	:	Poststrasse 4, 4061 Pasching, AUSTRIA

1.2 General Description of EUT (Equipment Under Test)

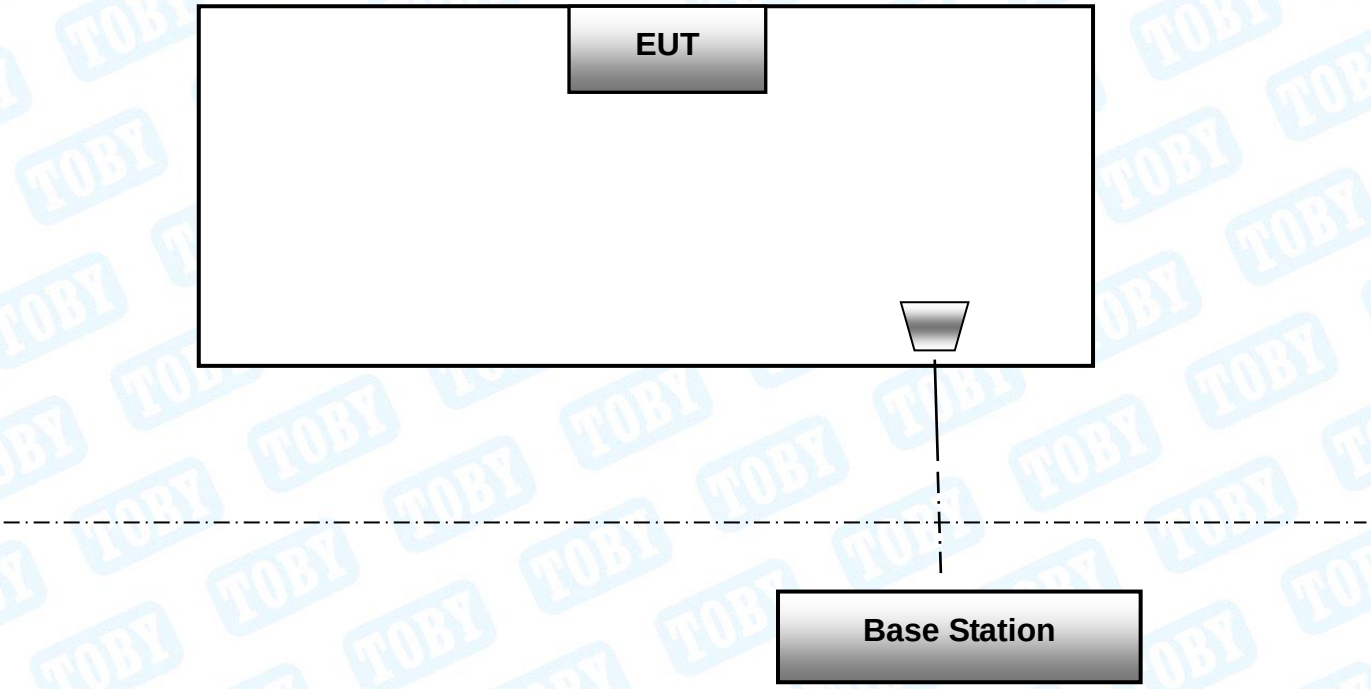
EUT Name	:	Tractive DOG XL	
Model	:	TG4XL	
Model Different	:	----	
Product Description	:	Operating Frequency:	GSM 850: 824.20MHz-848.80MHz PCS1900: 1850.20MHz-1909.80MHz
		Antenna Gain:	-3.45dBi for GSM850 -0.66dBi for GSM1900
		Modulation Type:	GSM/GPRS: GMSK EGPRS: 8PSK
Power Rating	:	USB Input: DC 5V/1A DC 3.7V 3000mAh 11.1Wh Rechargeable Li-ion battery	
Software Version	:	v4	
Hardware Version	:	v4	

Remark:

(1) The antenna gain provided by the applicant, the adapter and verified for the RF conduction test provided by TOBY test lab.

(2) The above antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

1.3 Block Diagram Showing the Configuration of System Tested



The above block diagram of setup is the normal mode. And more detail please refer to the test setup of each test item of bellow.

1.4 Description of Support Units

The EUT has been tested as an independent unit.

1.5 Description of Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned follow was evaluated respectively.

During all testing, EUT is link mode with base station at maximum power level. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range. Frequency range investigated for radiated emission as below：

1. 9kHz~10GHz for GSM850
2. 9kHz~20GHz for PCS1900

Test Channel		
Mode	**Channel**	**Frequency(MHz)**
GSM 850	128	824.20
	190	836.60
	251	848.80
PCS 1900	512	1850.20
	661	1880.00
	810	1909.80

Test Mode	Description
GSM 850	highest , middle, lowest channels
GPRS 850	highest , middle, lowest channels
EGPRS 850	highest , middle, lowest channels
GSM 1900	highest , middle, lowest channels
GPRS 1900	highest , middle, lowest channels
EGPRS 1900	highest , middle, lowest channels

Note:

(1) The measurements are performed at the highest, middle, lowest available channels.

(2) During the testing procedure, the EUT is in link mode with base station emulator at maximum power level in each test mode.

(3) The EUT has GSM, GPRS, EDGE functions, and after pre-testing, GSM function is the worst case for all the emission tests.

(4) The EUT is considered a portable unit; it was pre-tested on the positioned of each 3 axis, X-plane, Y-plane and Z-plane. The worst case was found positioned on Z-plane as the normal use. Therefore only the test data of this Z-plane was used for radiated emission measurement test.

1.6 Measurement Uncertainty

Test Item	Parameters	Expanded Uncertainty (U_{Lab})
Radiated Emission	Level Accuracy: 9kHz to 30 MHz	±4.60 dB
Radiated Emission	Level Accuracy: 30MHz to 1000 MHz	±4.50 dB
Radiated Emission	Level Accuracy: Above 1000MHz	±4.20 dB

1.7 Test Facility

The testing report were performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at 1/F., Building 6, Rundongsheng Industrial Zone, Longzhu, Xixiang, Bao'an District, Shenzhen, Guangdong, China. At the time of testing, the following bodies accredited the Laboratory:

CNAS (L5813)

The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

A2LA Certificate No.: 4750.01

The laboratory has been accredited by American Association for Laboratory Accreditation(A2LA) to ISO/IEC 17025：2017 General Requirements for the Competence of Testing and Calibration Laboratories for the technical competence in the field of Electrical Testing. And the A2LA Certificate No.: 4750.01.FCC Accredited Test Site Number: 854351. Designation Number: CN1223.

IC Registration No.: (11950A)

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A. CAB identifier: CN0056.

2. Test Summary

Test Standards and Test Results			
Standard	**Document Title**		
FCC Part 2 (10-1-05 Edition)	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations		
FCC Part 22/ FCC Part 27 10-1-05 Edition)	Public Mobile Services		
FCC Part 24 (10-1-05 Edition)	Personal Communications Services		
Standard Section	**Test Item**	**Judgment**	**Remark**
2.1051; 2.1057; 22.917; 24.238; 27.53(h)	Radiated Out of Band Emissions	PASS	N/A
Note: N/A is an abbreviation for Not Applicable.			

3. Test Equipment and Test Site

Test Site				
No.	**Test Site**	**Manufacturer**	**Specification**	**Used**
TB-EMCSR001	Shielding Chamber #1	YIHENG	7.5*4.0*3.0 (m)	X
TB-EMCSR002	Shielding Chamber #2	YIHENG	8.0*4.0*3.0 (m)	√
TB-EMCCA001	3m Anechoic Chamber #A	ETS	9.0*6.0*6.0 (m)	X
TB-EMCCB002	3m Anechoic Chamber #B	YIHENG	9.0*6.0*6.0 (m)	√

Radiation Emission Test (B Site)					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Last Cal.**	**Cal. Due Date**
Spectrum Analyzer	Agilent	N9020A	MY49100060	Aug. 30, 2023	Aug. 29, 2024
Spectrum Analyzer	Rohde & Schwarz	FSV40-N	102197	Jun. 17, 2024	Jun. 16, 2025
EMI Test Receiver	Rohde & Schwarz	ESU-8	100472/008	Feb. 23, 2024	Feb. 22, 2025
Bilog Antenna	SCHWARZBECK	VULB 9168	1225	Nov. 13, 2023	Nov. 12, 2025
Horn Antenna	SCHWARZBECK	BBHA 9120 D	2463	Jun. 14, 2024	Jun. 13, 2026
Horn Antenna	SCHWARZBECK	BBHA 9170	1118	Feb. 27, 2024	Feb. 26, 2026
Loop Antenna	SCHWARZBECK	FMZB 1519 B	1519B-059	Jun. 14, 2024	Jun. 13, 2026
HF Amplifier	Tonscend	TAP9E6343	AP21C806117	Aug. 30, 2023	Aug. 29, 2024
HF Amplifier	Tonscend	TAP051845	AP21C806141	Aug. 30, 2023	Aug. 29, 2024
HF Amplifier	Tonscend	TAP0184050	AP21C806129	Aug. 30, 2023	Aug. 29, 2024
Highpass Filter	CD	HPM-6.4/18G	---	N/A	N/A
Highpass Filter	CD	HPM-2.8/18G	---	N/A	N/A
Highpass Filter	XINBO	XBLBQ-HTA67(8-25G)	22052702-1	N/A	N/A

4. Radiated Out Band of Emissions

4.1 Test Standard and Limit

4.1.1 Test Standard

FCC Part 2: 2.1053, 2.1057

FCC Part 22H: 22.917

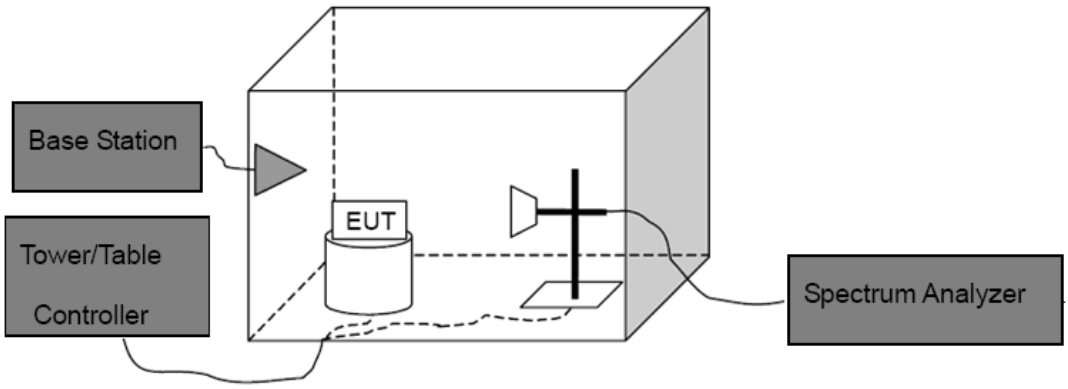
FCC Part 24E: 24.238

FCC Part 27: 53 (h)

4.1.2 Test Limit

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power(P) by a factor of at least 43+10log(P) dB. For all power levels +30 dBm to 0 dBm, this becomes a constant specification limit of -13 dBm.

4.2 Test Setup



4.3 Test Procedure

(1) The test system setup as show in the block diagram above.

(2) The EUT was placed on an non-conductive rotating platform in an anechoic chamber. The radiated spurious emissions from 30MHz to 10th harmonious of fundamental frequency were measured at 3 m with a test antenna and a spectrum analyzer with RBW=1 MHz, VBW=1 MHz, peak detector settings.

(3) During the measurement, the EUT was enforced in maximum power and linked with a base station. All the spurious emissions at 3m were measured by rotation of the turntable and the test antenna raised and lowered over a range from 1 to 4 meters in both horizontally and vertically polarized orientations.

(4) When found the maximum level of emissions from the EUT. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the

substitution.

Spurious emissions in dB=10 log(TX power in Watts/0.001)-the absolute level

Spurious attenuation limit in dB=43+10 log(power out in Watts)

4.4 EUT Operating Condition

The EUT was continuously connected with the Base station and transmitting in the max power during the test.

4.5 Deviation From Test Standard

No deviation

4.6 Test Data

Please refer to the Attachment A.

Attachment A--Radiated Out Band of Emissions

Measurement Data (worst case)

Test mode:	GSM 850
Channel:	Middle

Horizontal

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	155.1300	-66.41	-7.91	-74.32	-13.00	-61.32	peak	P
2	361.7400	-66.30	-5.77	-72.07	-13.00	-59.07	peak	P
3	472.3200	-67.31	-2.86	-70.17	-13.00	-57.17	peak	P
4	613.9400	-67.00	0.31	-66.69	-13.00	-53.69	peak	P
5	625.5800	-66.98	0.67	-66.31	-13.00	-53.31	peak	P
6 *	728.4000	-66.88	1.92	-64.96	-13.00	-51.96	peak	P

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	4876.000	-55.22	8.90	-46.32	-13.00	-33.32	peak	P
2 *	8267.500	-58.63	14.91	-43.72	-13.00	-30.72	peak	P

Vertical

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	120.2100	-66.57	-9.81	-76.38	-13.00	-63.38	peak	P
2	255.0400	-66.65	-8.84	-75.49	-13.00	-62.49	peak	P
3	431.5800	-66.99	-3.60	-70.59	-13.00	-57.59	peak	P
4	521.7900	-66.64	-2.30	-68.94	-13.00	-55.94	peak	P
5	606.1800	-67.17	0.42	-66.75	-13.00	-53.75	peak	P
6 *	770.1100	-67.08	2.24	-64.84	-13.00	-51.84	peak	P

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	7120.000	-56.91	12.08	-44.83	-13.00	-31.83	peak	P
2 *	9415.000	-59.31	19.76	-39.55	-13.00	-26.55	peak	P

Remark: 1, The testing has been conformed to 10*836.6MHz=8,366MHz.

2, All other emissions more than 30 dB below the limit.

3, Emission Level= Read Level+ Antenna Correct Factor +Cable Loss

Test mode:	GSM 1900
Channel:	Middle

Horizontal

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	121.1800	-64.24	-9.83	-74.07	-13.00	-61.07	peak	P
2	423.8200	-66.91	-4.20	-71.11	-13.00	-58.11	peak	P
3	573.2000	-66.67	-0.22	-66.89	-13.00	-53.89	peak	P
4	627.5200	-68.16	0.61	-67.55	-13.00	-54.55	peak	P
5	776.9000	-68.46	2.47	-65.99	-13.00	-52.99	peak	P
6 *	869.0500	-68.08	4.65	-63.43	-13.00	-50.43	peak	P

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	6074.500	-54.68	9.57	-45.11	-13.00	-32.11	peak	P
2 *	9389.500	-59.07	19.50	-39.57	-13.00	-26.57	peak	P

Vertical

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	38.7300	-68.11	-9.67	-77.78	-13.00	-64.78	peak	P
2	258.9200	-67.75	-9.18	-76.93	-13.00	-63.93	peak	P
3	428.6700	-67.98	-3.82	-71.80	-13.00	-58.80	peak	P
4	582.9000	-68.15	-0.33	-68.48	-13.00	-55.48	peak	P
5	672.1400	-68.00	0.69	-67.31	-13.00	-54.31	peak	P
6 *	816.6700	-68.32	4.38	-63.94	-13.00	-50.94	peak	P

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	6533.500	-54.75	10.73	-44.02	-13.00	-31.02	peak	P
2 *	9440.500	-59.22	20.16	-39.06	-13.00	-26.06	peak	P

Remark: 1, The testing has been conformed to 10*836.6MHz=8,366MHz.

2, All other emissions more than 30 dB below the limit.

3, Emission Level= Read Level+ Antenna Correct Factor +Cable Loss

------End of the Report------