



Test report No:
NIE: 61249REM.002

Test report

FCC Rules and Regulations CFR 47, Part 15, Subpart B (10-1-16 Edition) & ICES-003 (January 2016, Updated April 2017)

(*) Identification of item tested	Multimedia System
(*) Trademark	Continental
(*) Model and /or type reference tested	NAC EUR 19W2
Other identification of the product	HW Version: D2 SW Version: 21.08.22.32 FCC ID: ZFW-HW19W2
(*) Features	See on page 4
Manufacturer	Continental Automotive Czech Republic, s.r.o. Prumyslová 1851 250 01 Brandýs nad Labem, Czech Republic
Test method requested, standard	FCC CFR 47, Part 15, Subpart B (10-1-16 Edition) & ICES-003 (January 2016, updated April 2017)
Summary	IN COMPLIANCE
Approved by (name / position & signature)	Rafael López EMC Consumer & RF Lab. Manager  RAFAEL LÓPEZ MARTÍN 2019.09.11 16:25:17 +02'00'
Date of issue	2019-09-11
Report template No	FDT08_22 (*) "Data provided by the client"

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Competences and guarantees

DEKRA Testing and Certification is a testing laboratory accredited by the National Accreditation Body (ENAC - Entidad Nacional de Acreditación), to perform the tests indicated in the Certificate No. 51/LE 147.

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DEKRA Testing and Certification 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 on the report and, it is based on the knowledge and technical facilities available at DEKRA Testing and Certification at the time of performance of the test.

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

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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 Testing and Certification.
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Uncertainty

Uncertainty (factor $k=2$) was calculated according to the DEKRA Testing and Certification internal document PODT000.

The total uncertainty of the measurement system for the measured radio disturbance characteristics of EUT from 30 MHz to 1000 MHz is $I = \pm 4,9$ dB for quasi-peak measurements, $I = \pm 4,6$ dB for peak measurements ($k = 2$).

The total uncertainty of the measurement system for the measured radio disturbance characteristics of EUT from 1000 MHz to 18GHz is $I = \pm 2,6$ dB for peaks and average measurements ($k = 2$).

Data provided by the client

The following data has been provided by the client:

1. Information relating to the description of the sample ("Identification of the item tested", "Trademark", "Model and/or type reference tested").
2. The NAC EUR 19W2 is Multimedia Systems and OEM products for PSA.
This product is connected to the BSI (Boitier de Servitude Intelligent) via a CAN Low Speed BUS.
Two displays can be connected.
3. Features:
 - BT 3.0
 - WiFi b, g, n, 2.4 GHz only
 - Radio (AM, FM, DAB band III & L)
 - Navigation (GPS, GLONASS, GALILEO, SBAS)
 - External GMSL colour display, CAN interface to car, Internal Audio Amplifier, USB plug

DEKRA declines any responsibility with respect to the information provided by the client and that may affect the validity of results.

Usage of samples

Samples under test have been selected by: The client.

Sample S/01 is composed of the following elements:

Control Nº	Description	Model	Serial Nº	Date of reception
61249D/006	Multimedia System	NAC EUR 19W2	W2_BS19210000045_ TOP	2019-07-23

Auxiliary elements used with the sample S/01:

Control Nº	Description	Model	Serial Nº	Date of reception
61249D/017	SD Display DGT7C	---	00037_DGT7C_SD_ SN_005202	2019-07-23
61249D/045	DB25 Supply Cord for CAN Traffic Simulator (C6)	---	00021	2019-07-23
61249D/047	CAN Traffic Simulator (C6)	---	00025	2019-07-23
61249D/053	Harness with 3 cables (Fakra Connectos)	---	00045	2019-07-23
61249D/054	33 Ohms Resistor with heatsink	---	00046	2019-07-23
61249D/058	4x4 Ohms - loudspeaker	---	00050	2019-07-23
61249D/059	Dummy Loads with Heatsink Full Harness - FAKRA Block Connector	---	00051	2019-07-23
61249D/061	USB Keys - Shielded	---	00032	2019-07-23
61249D/064	USB Keys - Shielded	---	00035	2019-07-23
61249D/066	USB Keys - Shielded	---	00044	2019-07-23
61249D/067	Antenna for Car - AM/FM + DAB	---	00056	2019-07-23
61249D/069	GPS antenna with Fakra plug	---	00053	2019-07-23

Test sample description

Ports..... :	Port name and description	Cable					
		Specified length [m]	Attached during test	Shielded			
	Power supply	2	☐	☐			
	CAN LS	2	☐	☐			
	Loudspeakers	2	☐	☐			
	Video Input	2	☐	☐			
	CD Power	2	☐	☐			
	CD Audio IN	2	☐	☐			
	Line Out Subwoofer	2	☐	☐			
	Line Out Central	2	☐	☐			
	AUX In Stereo	2	☐	☐			
	Microphone 1	2	☐	☐			
	Microphone 2	2	☐	☐			
Supplementary information to the ports..... :	2 Harness configurations 1 st configuration is complete and used for the EMC & Safety test 2 nd configuration is lighter and used for the RF test (Power+CAN LS)						
Rated Power supply..... :	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	☐	AC:	☐	☐	☐	☐	☐
	☐	AC:	☐	☐	☐	☐	☐
	☒	DC: 12Vdc.					
	☐	DC:					
Rated Power	12V – 15 A → 180W						
Internal operating frequencies	Max. Frequency = Bluetooth F _{max} 2.4835 GHz						
Other parameters.....	FCC ID: ZFW-HW19W2						
Software version	21.08.22.32						
Hardware version.....	D2						
Dimensions in cm (L x W x D)	22 x 5.2 x 16						
Mounting position..... :	☐	Table top equipment					
	☐	Wall/Ceiling mounted equipment					
	☐	Floor standing equipment					

	☐	Hand-held equipment		
	☒	Other: Car Dashboard Equipment		
Modules/parts	Module/parts of test item		Type	Manufacturer
	--			
Accessories (not part of the test item)	Description		Type	Manufacturer
	GPS antenna		Antenna GPS7 M-Fakra Femelle	HIRSCHMANN
	AM/FM/DAB antenna		RDA 015-1450 RD/S	HIRSCHMANN
	CAN SIM Box		C6	RIEDERER ELEKTRONIK
Documents as provided by the applicant.....	Description		File name	Issue date
	Technical Specifications		HW2019_BT.pdf	
	Technical Specifications		HW2019_WIFI.pdf	

Identification of the client

CONTINENTAL AUTOMOTIVE RAMBOUILLET FRANCE S.A.S.
1, rue de Clairefontaine
78120, Rambouillet, FRANCE

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2019-07-22
Date (finish)	2019-07-23

Document history

Report number	Date	Description
61249REM.002	2019-09-11	First release

Environmental conditions

In the control chamber, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 30 % Max. = 75 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

In the semianechoic chamber, the following limits were not exceeded during the test.

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 30 % Max. = 75 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

In the chamber for conducted measurements, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 30 % Max. = 60 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

Remarks and comments

The test have been performed by the technical personnel: David Rubio & Daniel Lopez.

Testing verdicts

Not applicable :	N/A
Pass :	P
Fail :	F
Not measured :	N/M

List of equipment used during the test

Control Number	Description	Model	Manufacturer	Next Calibration
0246	HORN ANTENNA 1-18GHz	11966E	HEWLETT PACKARD	2021-10-13
3545	USB TEMPERATURE AND HUMIDITY SENSOR	HUMIDIPROBE	PICO TECHNOLOGY	2020-04-03
3547	USB TEMPERATURE AND HUMIDITY SENSOR	HUMIDIPROBE	PICO TECHNOLOGY	2020-04-03
4659	PRE-AMPLIFIER G>28dB 1-18GHz	BBV 9718	SCHWARZBECK	2019-05-25
6666	EMI TEST RECEIVER 2Hz-44GHz	ESW44	ROHDE AND SCHWARZ	2020-02-14
6815	HYBRID BILOG ANTENNA 30MHz-6GHz	3142E	ETS LINDGREN	2022-02-01

Summary

Emission Test		
Requirement – Test case	Verdict	Remark
Radiated emission test (30 MHz – 1000 MHz)	Pass	N/A
Radiated emission test (1 GHz – 18 GHz)	Pass	N/A
Conducted emission test (150 kHz to 30 MHz)	N/A	See 1
<u>Supplementary information and remarks:</u> 1) This test is not applicable for DC power ports.		

Appendix A: Test results

Appendix A content

DESCRIPTION OF THE OPERATION MODES13

RADIATED EMISSION. ELECTROMAGNETIC FIELD MEASURE14

DESCRIPTION OF THE OPERATION MODES

The operation modes described in this paragraph constitute a functionality of the sample under test for itself. The operation modes used by the samples to which the present report refers, are shown in the following table:

OPERATION MODE	DESCRIPTION
OM#01	EUT ON. Bluetooth and WiFi without communication established. GPS in reception mode. FM radio in reception mode. Power Supply: 13.5Vdc

RADIATED EMISSION. ELECTROMAGNETIC FIELD MEASURE

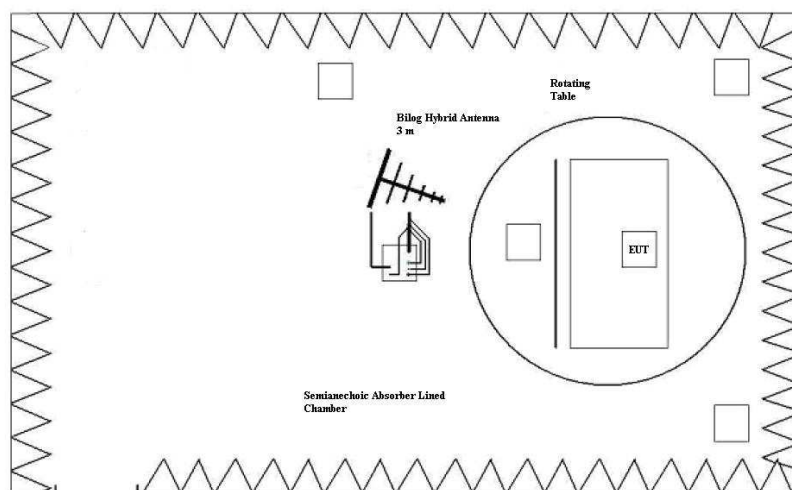
LIMITS:

Product standard:	FCC CFR 47, Part 15, Subpart B (10-1-16 Edition), Secs. 15.109; ICES-003 (January 2016, updated April 2017)
Test standard:	FCC CFR 47, Part 15, Subpart B (10-1-16 Edition), Secs. 15.109; ICES-003 (January 2016, updated April 2017)

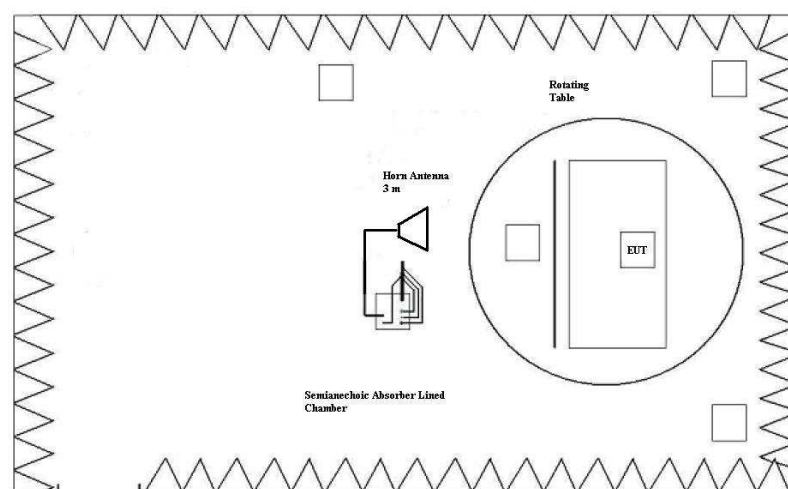
Limits of interference Class B

The applied limit for radiated emissions, 3 m distance, according with the requirements of FCC Rules and Regulations 47 CFR Part 15, Subpart B (10-1-16 Edition), Secs. 15.109 & ICES-003 (January 2016, updated April 2017) in the frequency range 30 MHz to 12.75 GHz for class B equipments.

Frequency range (MHz)	QP Limit for 3 m		PK Limit for 3 m
	($\mu\text{V/m}$)	(dB $\mu\text{V/m}$)	(dB $\mu\text{V/m}$)
30 to 88	100	40	---
88 to 216	150	43.5	---
216 to 960	200	46	---
Above 960	500	54	74



Setup for measurements < 1GHz.



Setup for measurements > 1GHz.

TESTED SAMPLE:	S/01
TESTED OPERATION MODES:	OM#01
TEST RESULTS:	CRmmnnRRPP: CR, Radiated Condition; mm: Sample number; nn: Operation mode; RR: Range; PP: Polarization.

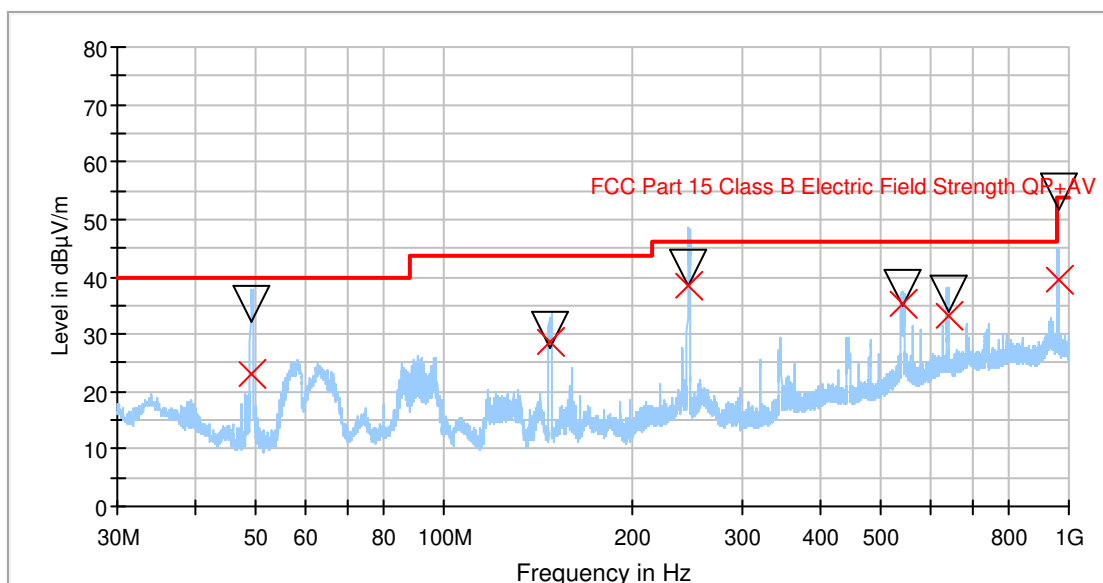
CRmmnnRRPP	Description	Result
CR0101LR	Range: 30 MHz - 1000 MHz.	P
CR0101HR1_VP	Range: 1GHz – 18GHz. Vertical polarization	P
CR0101HR1_HP	Range: 1GHz – 18GHz. Horizontal polarization	P

Note: Range: $f > 18$ GHz. Test required only to the 5th harmonics of the maximum internal work frequency in the EUT.

Radiated Emission: CR0101LR

Project: 61249REM.002
Company: CONTINENTAL AUTOMOTIVE RAMBOUILLET FRANCE S.A.S.
Sample: S/01
Operation mode: OM#01
Description: EUT ON. Bluetooth and WiFi without communication established.
GPS in reception mode. FM radio in reception mode. Power Supply: 13.5Vdc.

FCC Part15 Class B



— Peak Preview
— FCC Part 15 Class B Electric Field Strength QP+AV
▽ MaxPeak
× QuasiPeak

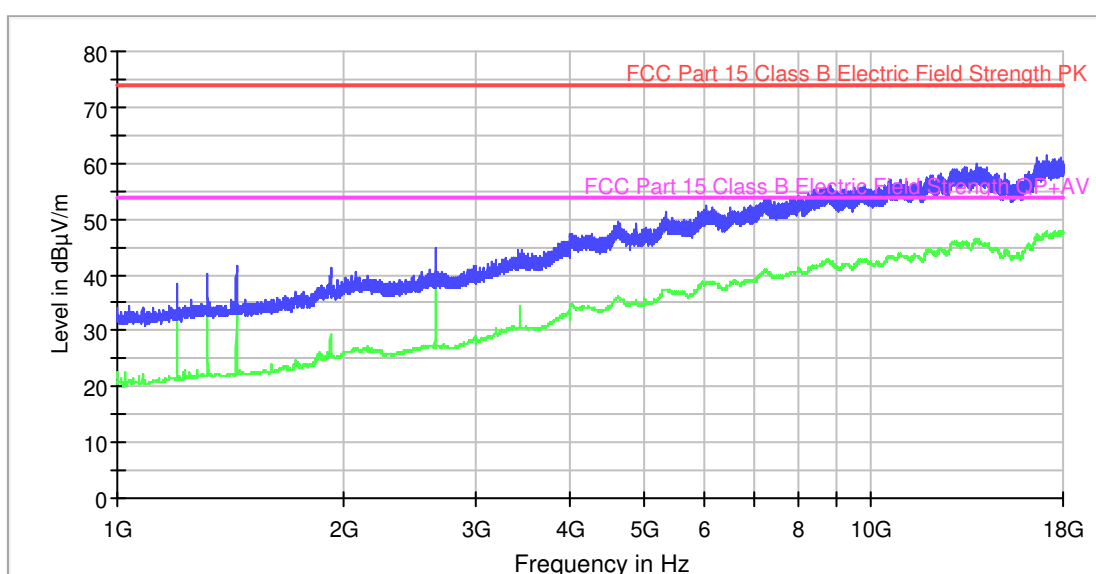
Maximizations

Frequency (MHz)	MaxPeak (dBµV/m)	QuasiPeak (dBµV/m)	Height (cm)	Pol	Azimuth (deg)
49.120000	35.14	23.07	131.0	V	164.0
148.255000	30.64	28.56	143.0	H	87.0
245.160000	41.69	38.56	120.0	V	7.0
539.880000	38.14	35.35	249.0	V	147.0
643.710000	36.99	33.15	212.0	V	4.0
960.605000	54.97	39.49	132.0	V	67.0

Radiated Emission: CR0101HR1_HP

Project: 61249REM.002
Company: CONTINENTAL AUTOMOTIVE RAMBOUILLET FRANCE S.A.S.
Sample: S/01
Operation mode: OM#01
Description: EUT ON. Bluetooth and WiFi without communication established.
GPS in reception mode. FM radio in reception mode. Power Supply:
13.5Vdc. Horizontal Polarization

FCC Part 15 ClassB 1-18 GHz



— Average Scan
— Peak Scan
— FCC Part 15 Class B Electric Field Strength PK
— FCC Part 15 Class B Electric Field Strength QP+AV

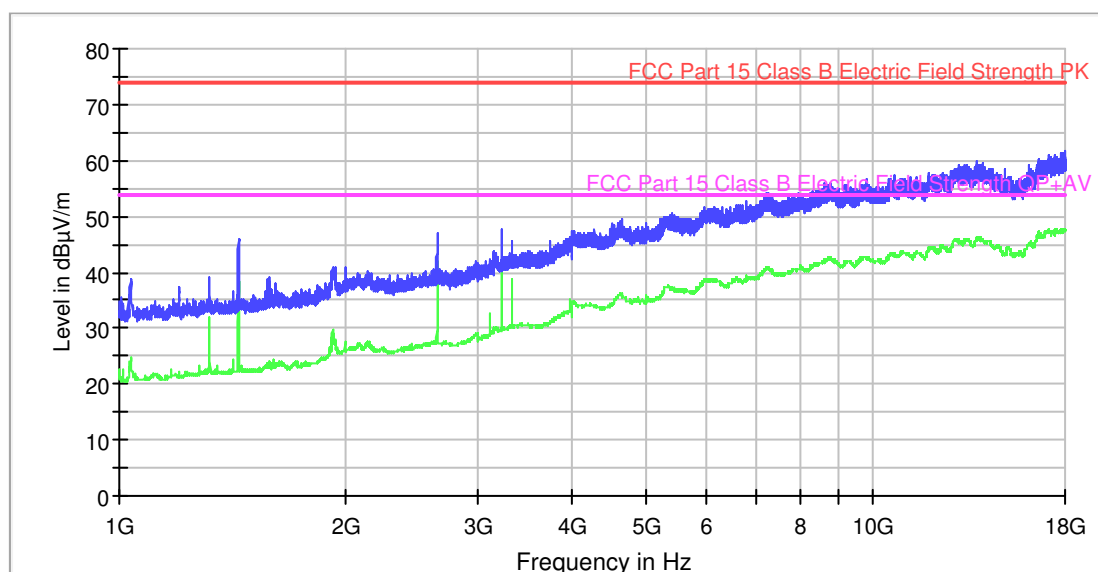
Subrange Maxima

Frequency (MHz)	PK+ CLRWR (dBµV/m)	AVG CLRWR (dBµV/m)
1440.000000	41.6	33.2
1920.400000	41.1	28.7
4001.600000	47.5	34.7
6062.800000	52.5	38.5
10659.600000	56.9	43.1
17130.800000	61.4	47.4

Radiated Emission: CR0101HR1_VP

Project: 61249REM.002
Company: CONTINENTAL AUTOMOTIVE RAMBOUILLET FRANCE S.A.S.
Sample: S/01
Operation mode: OM#01
Description: EUT ON. Bluetooth and WiFi without communication established.
GPS in reception mode. FM radio in reception mode. Power Supply:
13.5Vdc. Vertical Polarization

FCC Part 15 ClassB 1-18 GHz



— Average Scan
— Peak Scan
— FCC Part 15 Class B Electric Field Strength PK
— FCC Part 15 Class B Electric Field Strength QP+AV

Subrange Maxima

Frequency (MHz)	PK+ CLRWR (dBµV/m)	AVG CLRWR (dBµV/m)
1320.400000	39.0	31.8
1440.400000	45.9	37.2
1992.000000	41.0	27.7
2640.800000	47.0	41.8
3217.600000	47.6	42.3
5421.600000	50.5	37.1
7283.600000	54.3	40.6
9846.800000	56.7	42.6
13346.800000	59.3	46.0
17992.800000	61.7	47.7