RF Exposure Assessment

Infotainment controller
VCE CDC

FCC ID: NT8-VCECDC
IC: 3043A-VCECDC

Test Report Reference: MDE_VIS_1910_MPE_01

according to:

OET Bulletin 65 Edition 97-01 August 1997
FCC 47 CFR §1.1307
FCC 47 CFR §1.1310

Test Laboratory:
7layers GmbH
Borsigstrasse 11
40880 Ratingen
Germany

Administrative Data:

Testing Laboratory

Company Name:	7layers GmbH
Address:	Borsigstr. 11 40880 Ratingen Germany

Project Data

Responsible for report:	Mr. Abdellah Ahakki
Date of Report:	2024-10-02
Testing Period:	2024-01-22 to 2024-04-09

Applicant Data

Company Name:	Visteon Corporation
Address:	One Village Center Drive Van Buren Township, MI, 48111 United States
Contact Person:	Mr. Martin Tapankov

Manufacturer Data

Company Name:	please see Applicant data
Address:	- - -
Contact Person:	-

Test object Data

General Description of Radio Device

Kind of Device product description	The device is an Infotainment controller with Bluetooth and WiFi connectivity supporting reception of AM/FM and DAB broadcasts.
Product name	Infotainment Controller
Type	VCE CDC
Declared EUT data by the supplier	
Power Supply Type	DC (vehicular battery)
Nominal Voltage / Frequency	7.5 - 20 V (Input voltage to AUX 1 which is connected to the EUT)
Test Voltage / Frequency	14.4 V (AUX 1)
Highest internal frequency	5925 MHz
Ports	- Wi-Fi/Bluetooth antenna (connected to ANC 1) - AM/FM/DAB tuner antenna (connected to ANC 2) - Cable harness (connected to AUX 1) - 2x USB (connected to AUX 1) - 4x Camera (connected to AUX 1) - 3x Display (connected to AUX 1) - 5x Ethernet 100Base-T1 (connected to AUX 1)
Special software used for testing	The Qualcomm Radio Control Tool (QRCT) is used to put the EUT into test mode.

RF Exposure evaluation

Standards
OET Bulletin 65 Edition 97-01 August 1997
FCC 47 CFR §1.1307
FCC 47 CFR §1.1310

Test limits

As specified in Table 1B of 47 CFR 1.1310 – Limits for Maximum Permissible Exposure (MPE), Limits for General Population/Uncontrolled Exposure.

Frequency range (MHz)	*Power density (mW/cm²)*
300 – 1,500	f/1500
1,500 – 100,000	1.0

Equation OET bulletin 65, page 18, edition 97-01: $S = \frac{PG}{4\pi R^2} = \frac{EIRP}{4\pi R^2}$

Where:

S = power density
P = power input to the antenna
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna

Distance to antenna R = 20cm

Remark:

- only worst-case values are listed in the table above

Operational Bands	Frequency (MHz)	Antenna Gain (dBi)	Output Power - conducted (dBm)	Output Power - conducted (mW)	Output Power EIRP (dBm)	Output Power EIRP (mW)
Bluetooth	2441	-1.5	7.7	5.88	6.2	4.16
WLAN 2.4 GHz	2452	-1.5	15.1	32.35	13.6	22.90
WLAN 5 GHz	5230	0.5	8.4	6.91	8.9	7.76

Co-Location Considerations

The calculation below is used to consider situations in which simultaneous exposure to fields of different frequencies occur. The calculation is performed by the sum of each relative exposure for each equipment according to the following criteria.

$$\sum_{1}^{N} \frac{S_{eqn}}{S_{Limn}} = \frac{S_{eq1}}{S_{Lim1}} + \frac{S_{eq2}}{S_{Lim2}} + \ldots + \frac{S_{eqN}}{S_{LimN}} \leq 1$$

Where:

S_{eq} is the power density of the electromagnetic field at a given distance by a specific transmitter and a defined frequency.

S_{lim} is the MPE limit for the frequency being evaluated.

Assessment of Co-Location for FCC:

Technology	Power Density value (mW/cm²)	FCC Limit (mW/cm²)	Margin to FCC Limit (mW/cm²)
BT	0.0008	1.0000	0.9992
WLAN 2.4	0.0046	1.0000	0.9954
WLAN 5	0.0015	1.0000	0.9985
Co-Location	0.0069	1.0000	0.9931

Yours sincerely,

Abdellah Ahakki