

Test report No:
 NIE: 79405RAN.001A1

Assessment report

RF EXPOSURE REPORT ACCORDING TO

FCC 47 CFR Part 2.1093
 FCC 47 CFR Part 1.1307
 FCC 47 CFR Part 2.1091
 FCC 47 CFR Part 1.1310

(*) Identification of item under evaluation	Automotive infotainment SystemIDC
(*) Trademark	BMW
(*) Model and /or type reference	IDCEVO-EES25
(*) Other identification of the product	FCC ID : T8GIDCEVOEES25 IC : 6434A-IDCEVOEES25 HW version : 1.1.7_B505 SW Version : 25W10_4_1
(*) Features	WLAN, Bluetooth
(*) Manufacturer	HARMAN BECKER AUTOMOTIVE SYSTEMS GMBH BECKER-GOERING-STR. 16; 76307 KARLSBAD GERMANY
Test method requested, standard	FCC 47 CFR Part 2.1093. Radiofrequency radiation exposure evaluation: portable devices. FCC 47 CFR Part 1.1307: Actions that may have a significant environmental effect, for which Environmental Assessments (EAs) must be prepared. FCC 47 CFR Part 2.1091 Radiofrequency radiation exposure evaluation: mobile devices. FCC 47 CFR Part 1.1310: Radiofrequency radiation exposure limits.
Summary	IN COMPLIANCE
Approved by (name / position & signature)	Manuel García Antennas Lab Technical Responsible
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The following data has been provided by the client:

1. Information relating to the description of the sample ("Identification of the item under evaluation", "Trademark", "Model and/or type reference", "General description of the device", "Other identification of the product").
2. Maximum output power, maximum antenna gain and use distance information.
3. The device under evaluation consists of an Automotive infotainment SystemIDC.

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

Identification of the client

HARMAN BECKER AUTOMOTIVE SYSTEMS GMBH
BECKER-GOERING-STR. 16; 76307 KARLSBAD GERMANY

Document history

Report number	Date	Description
79405RAN.001	2025-11-14	First release.
79405RAN.001A1	2025-12-17	Second release. Simultaneous transmission conditions have been updated. This report cancels and replaces 79405RAN.001

Appendix A: FCC RF Exposure assessment result

General description of the device under evaluation

Table 1 provides details for the RF Evaluation, based on the following declared device specifications:

Description and technologies: the device under evaluation consists of an Automotive infotainment SystemIDC and supports the following radios technologies: WLAN, Bluetooth. The RF Exposure evaluation applies only to all transmission technologies supported by the device.

Evaluation Distance: according to the manufacturer, antenna positions and separation distance vary depending on the car line. For the evaluation, the worst-case separation distance has been applied for all antennas as a conservative approach. The device's radiating structures will maintain a separation distance greater than 7.954 cm from nearby users during normal use. Therefore, a conservative evaluation distance of 7.5 cm has been applied for the assessment.

Maximum output power:

EIRP values have been declared by the device manufacturer. These values are stated in manufacturer's technical description document.

Antennas: the device supports several antennas for the following transmission technologies:

- "Dual Planar Inverted-F Antenna" for Wi-Fi 2.4 GHz, 5GHz and 6GHz transmissions
- "Dual Planar Inverted-F Antenna" for Bluetooth transmissions.

The manufacturer has declared the maximum peak gain values, as stated in the antenna manufacturer's datasheet.

The following table shows the information provided above:

Technology / Mode	Operating Band	Frequency under evaluation (MHz)	Transmitting configuration	Maximum Conducted Output Power (Incl. Tune-Up) (dBm)	Antenna 1 peak gain (dBi)	Antenna 2 peak gain (dBi)	Antenna 3 peak gain (dBi)	Antenna 4 peak gain (dBi)	Maximum Averaged E.R.P (dBm)	Maximum Averaged E.R.P (mW)	Maximum Averaged E.I.R.P (dBm)	Maximum Averaged E.I.R.P (mW)
802.11b/g/n	2.4 GHz	2412 - 2484	SISO RF Port 3	10.15	-	-	0.32	-	8.32	6.79	10.47	11.14
802.11b/g/n	2.4 GHz	2412 - 2484	SISO RF Port 4	10.15	-	-	-	-0.18	7.82	6.05	9.97	9.93
802.11b/g/n	2.4 GHz	2412 - 2484	MIMO RF Port 3	10.15	-	-	0.32	-	8.32	6.79	10.47	11.14
802.11b/g/n	2.4 GHz	2412 - 2484	MIMO RF Port 4	10.15	-	-	-	-0.18	7.82	6.05	9.97	9.93
802.11a/n/ac	5 GHz	5150 - 5850	SISO RF Port 1	18.65	-2.42	-	-	-	14.08	25.59	16.23	41.98
802.11a/n/ac	5 GHz	5150 - 5850	SISO RF Port 2	18.65	-	-1.25	-	-	15.25	33.50	17.40	54.95
802.11a/n/ac	5 GHz	5150 - 5850	SISO RF Port 3	18.65	-	-	-1.25	-	15.25	33.50	17.40	54.95
802.11a/n/ac	5 GHz	5150 - 5850	SISO RF Port 4	18.65	-	-	-	-2.42	14.08	25.59	16.23	41.98
802.11a/n/ac	5 GHz	5150 - 5850	MIMO RF Port 1	18.65	-2.42	-	-	-	14.08	25.59	16.23	41.98
802.11a/n/ac	5 GHz	5150 - 5850	MIMO RF Port 2	18.65	-	-1.25	-	-	15.25	33.50	17.40	54.95
802.11a/n/ac	5 GHz	5150 - 5850	MIMO RF Port 3	18.65	-	-	-1.25	-	15.25	33.50	17.40	54.95
802.11a/n/ac	5 GHz	5150 - 5850	MIMO RF Port 4	18.65	-	-	-	-2.42	14.08	25.59	16.23	41.98
802.11a/n/ac	6 GHz	5925 - 6425	SISO RF Port 1	15.65	-2.42	-	-	-	11.08	12.82	13.23	21.04
802.11a/n/ac	6 GHz	5925 - 6425	SISO RF Port 2	15.65	-	-1.25	-	-	12.25	16.79	14.40	27.54
802.11a/n/ac	6 GHz	5925 - 6425	SISO RF Port 3	15.65	-	-	-1.25	-	12.25	16.79	14.40	27.54
802.11a/n/ac	6 GHz	5925 - 6425	SISO RF Port 4	15.65	-	-	-	-2.42	11.08	12.82	13.23	21.04
802.11a/n/ac	6 GHz	5925 - 6425	MIMO RF Port 1	15.65	-2.42	-	-	-	11.08	12.82	13.23	21.04
802.11a/n/ac	6 GHz	5925 - 6425	MIMO RF Port 2	15.65	-	-1.25	-	-	12.25	16.79	14.40	27.54
802.11a/n/ac	6 GHz	5925 - 6425	MIMO RF Port 3	15.65	-	-	-1.25	-	12.25	16.79	14.40	27.54
802.11a/n/ac	6 GHz	5925 - 6425	MIMO RF Port 4	15.65	-	-	-	-2.42	11.08	12.82	13.23	21.04
Bluetooth	2.4 GHz	2400 – 2483.5	SISO RF Port 1	13.00	-0.18	-	-	-	10.67	11.67	12.82	19.14
Bluetooth	2.4 GHz	2400 – 2483.5	SISO RF Port 2	13.00	-	0.32	-	-	11.17	13.09	13.32	21.47

Table 1: Equipment specifications

Simultaneous Transmission Conditions:

The device supports the following simultaneous transmissions modes:

Simultaneous technologies and modes	Exposure Condition
BT (Chip #1) + MIMO 5G (Chip#1) + MIMO 6G (Chip#2)	Body
BT (Chip#1) + MIMO 2G4 (Chip#1) + MIMO 5G (Chip#2)	
BT (Chip#1) + MIMO 2G4 (Chip#1) + MIMO 6G (Chip#2)	
BT (Chip#1) + MIMO 5G(Chip#1) + MIMO 5G (Chip#2)	

Table 2: Supported Simultaneous Transmission

Evaluation Results

The determination of the exemption for the minimum intended use distance of 7.5cm will result as follows:

Technology / Mode	Operating Band	Frequency under evaluation (MHz)	Transmitting configuration	Distance (cm)	Time Averaged Conducted Power (mW)	Maximum Averaged E.R.P (mW)	§1.1307(b)(3).i.(A) Exposure Limit (mW)	§1.1307(b)(3).i.(C) Exposure Limit (mW)	§ 1.1307(b)(3).i.(B) Exposure Limit (mW)	Verdict
802.11b/g/n	2.4 GHz	2412 - 2484	SISO RF Port 3	7.50	10.35	N/A	N/A	N/A	472.27	Pass
802.11b/g/n	2.4 GHz	2412 - 2484	SISO RF Port 4	7.50	10.35	N/A	N/A	N/A	472.27	Pass
802.11b/g/n	2.4 GHz	2412 - 2484	MIMO RF Port 3	7.50	10.35	N/A	N/A	N/A	472.27	Pass
802.11b/g/n	2.4 GHz	2412 - 2484	MIMO RF Port 4	7.50	10.35	N/A	N/A	N/A	472.27	Pass
802.11a/n/ac	5 GHz	5150 - 5850	SISO RF Port 1	7.50	73.28	N/A	N/A	N/A	393.51	Pass
802.11a/n/ac	5 GHz	5150 - 5850	SISO RF Port 2	7.50	73.28	N/A	N/A	N/A	393.51	Pass
802.11a/n/ac	5 GHz	5150 - 5850	SISO RF Port 3	7.50	73.28	N/A	N/A	N/A	393.51	Pass
802.11a/n/ac	5 GHz	5150 - 5850	SISO RF Port 4	7.50	73.28	N/A	N/A	N/A	393.51	Pass
802.11a/n/ac	5 GHz	5150 - 5850	MIMO RF Port 1	7.50	73.28	N/A	N/A	N/A	393.51	Pass
802.11a/n/ac	5 GHz	5150 - 5850	MIMO RF Port 2	7.50	73.28	N/A	N/A	N/A	393.51	Pass
802.11a/n/ac	5 GHz	5150 - 5850	MIMO RF Port 3	7.50	73.28	N/A	N/A	N/A	393.51	Pass
802.11a/n/ac	5 GHz	5150 - 5850	MIMO RF Port 4	7.50	73.28	N/A	N/A	N/A	393.51	Pass
802.11a/n/ac	6 GHz	5925 - 6425	SISO RF Port 1	7.50	36.73	12.82	N/A	108.00	N/A	Pass
802.11a/n/ac	6 GHz	5925 - 6425	SISO RF Port 2	7.50	36.73	16.79	N/A	108.00	N/A	Pass
802.11a/n/ac	6 GHz	5925 - 6425	SISO RF Port 3	7.50	36.73	16.79	N/A	108.00	N/A	Pass
802.11a/n/ac	6 GHz	5925 - 6425	SISO RF Port 4	7.50	36.73	12.82	N/A	108.00	N/A	Pass
802.11a/n/ac	6 GHz	5925 - 6425	MIMO RF Port 1	7.50	36.73	12.82	N/A	108.00	N/A	Pass
802.11a/n/ac	6 GHz	5925 - 6425	MIMO RF Port 2	7.50	36.73	16.79	N/A	108.00	N/A	Pass
802.11a/n/ac	6 GHz	5925 - 6425	MIMO RF Port 3	7.50	36.73	16.79	N/A	108.00	N/A	Pass
802.11a/n/ac	6 GHz	5925 - 6425	MIMO RF Port 4	7.50	36.73	12.82	N/A	108.00	N/A	Pass
Bluetooth	2.4 GHz	2400 – 2483.5	SISO RF Port 1	7.50	19.95	N/A	N/A	N/A	472.29	Pass
Bluetooth	2.4 GHz	2400 – 2483.5	SISO RF Port 2	7.50	19.95	N/A	N/A	N/A	472.29	Pass

Table 3: FCC Exemption Evaluation Result

The computed value(s) are below the exemption limit(s), so these modes meet the requirements stated in FCC 47 CFR Part 1.1307.

Simultaneous transmission assessment:

The device under evaluation is able to transmit simultaneously using WLAN and Bluetooth transmitters, therefore the most conservative approach for the evaluation of the simultaneous transmission will be:

Simultaneous technologies and modes	Result ($\sum$ of Pout/Pmax ratios)	Verdict ($\sum \leq 1$)
BT (Chip #1) + MIMO 5G (Chip#1) + MIMO 6G (Chip#2)	0.59	Pass
BT (Chip#1) + MIMO 2G4 (Chip#1) + MIMO 5G (Chip#2)	0.49	Pass
BT (Chip#1) + MIMO 2G4 (Chip#1) + MIMO 6G (Chip#2)	0.33	Pass
BT (Chip#1) + MIMO 5G(Chip#1) + MIMO 5G (Chip#2)	0.74	Pass

Table 4: Simultaneous Result

As the compliance criteria is fulfilled, simultaneous transmission condition is in compliance with the RF exposure requirements.

Appendix B: FCC RF Exposure information

RF Exposure determination of exemption

According to FCC 47 CFR §1.1307 (b)(3) Determination of exemption:

(i) For single RF sources (i.e., any single fixed RF source, mobile device, or portable device, as defined in paragraph (b)(2), a single RF source is exempt if:

(A) The available maximum time-averaged power is no more than 1 mW, regardless of separation distance. This exemption may not be used in conjunction with other exemption criteria other than those in paragraph (b)(3)(ii)(A) of this section. Medical implant devices may only use this exemption and that in paragraph (b)(3)(ii)(A);

(B) Or the available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold Pth (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive). Pth is given by:

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

Where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right) \text{ and } f \text{ is in GHz;}$$

and

$$ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$$

d = the separation distance (cm);

(C) Or using Table 1 and the minimum separation distance (R in meters) from the body of a nearby person for the frequency (f in MHz) at which the source operates, the ERP (watts) is no more than the calculated value prescribed for that frequency. For the exemption in Table 1 to apply, R must be at least λ/2π, where λ is the free-space operating wavelength in meters. If the ERP of a single RF source is not easily obtained, then the available maximum time-averaged power may be used in lieu of ERP if the physical dimensions of the radiating structure(s) do not exceed the electrical length of λ/4 or if the antenna gain is less than that of a half-wave dipole (1.64 linear value).

TABLE 1 TO §1.1307(b)(3)(i)(C)—SINGLE RF SOURCES SUBJECT TO ROUTINE ENVIRONMENTAL EVALUATION

RF Source frequency (MHz)	Threshold ERP (watts)
0.3-1.34	1,920 R ² .
1.34-30	3,450 R ² /f ² .
30-300	3.83 R ² .
300-1,500	0.0128 R ² f.
1,500-100,000	19.2R ² .

(ii) For multiple RF sources: Multiple RF sources are exempt if:

(A) The available maximum time-averaged power of each source is no more than 1 mW and there is a separation distance of two centimeters between any portion of a radiating structure operating and the nearest portion of any other radiating structure in the same device, except if the sum of multiple sources is less than 1 mW during the time-averaging period, in which case they may be treated as a single source (separation is not required). This exemption may not be used in conjunction with other exemption criteria other than those in paragraph (b)(3)(i)(A) of this section. Medical implant devices may only use this exemption and that in paragraph (b)(3)(i)(A).

(B) in the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation.

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure Limit_k} \leq 1$$

Where:

a = number of fixed, mobile, or portable RF sources claiming exemption using paragraph (b)(3)(i)(B) of this section for P_{th}, including existing exempt transmitters and those being added.

b = number of fixed, mobile, or portable RF sources claiming exemption using paragraph (b)(3)(i)(C) of this section for Threshold ERP, including existing exempt transmitters and those being added.

c = number of existing fixed, mobile, or portable RF sources with known evaluation for the specified minimum distance including existing evaluated transmitters.

P_i = the available maximum time-averaged power or the ERP, whichever is greater, for fixed, mobile, or portable RF source i at a distance between 0.5 cm and 40 cm (inclusive).

P_{th,i} = the exemption threshold power (P_{th}) according to paragraph (b)(3)(i)(B) of this section for fixed, mobile, or portable RF source i.

ERP_j = the ERP of fixed, mobile, or portable RF source j.

ERP_{th,j} = exemption threshold ERP for fixed, mobile, or portable RF source j, at a distance of at least λ/2π according to the applicable formula of paragraph (b)(3)(i)(C) of this section.

Evaluated_k = the maximum reported SAR or MPE of fixed, mobile, or portable RF source k either in the device or at the transmitter site from an existing evaluation at the location of exposure.

Exposure Limit_k = either the general population/uncontrolled maximum permissible exposure (MPE) or specific absorption rate (SAR) limit for each fixed, mobile, or portable RF source k, as applicable from §1.1310 of this chapter.

The available maximum time-averaged power or effective radiated power (ERP), can be calculated using the following formula to assess compliance with the Exemption Limits:

$$P_{E.I.R.P.} = P_T + G_T - L_C$$

Where:

P_T = transmitter time-averaged output power (including Duty Cycle and tune-up tolerance, if applicable)

G_T = gain of the transmitting antenna

L_C = signal attenuation in the connecting cable between the transmitter and the antenna if applicable

$$P_{E.R.P.} = P_{E.I.R.P.} - 2.15 \text{ dB}$$

Portable devices transmitting at frequencies above 6 GHz (e.g., Part 15 U-NII 6 GHz band) are subject to the MPE incident power density limits of § 1.1310:

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3–3.0	614	1.63	* 100	6
3.0–30	1842/f	4.89/f	* 900/f ²	6
30–300	61.4	0.163	1.0	6
300–1,500			f/300	6
1,500–100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	* 100	30
1.34–30	824/f	2.19/f	* 180/f ²	30
30–300	27.5	0.073	0.2	30
300–1,500			f/1500	30
1,500–100,000			1.0	30

f = frequency in MHz * = Plane-wave equivalent power density