

RF Exposure Statement: JP26G23K 001

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Client: Faurecia Clarion Electronics Co., Ltd.
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Test item: Car Audio

Identification: P2601

FCC Requirement

According to FCC §2.1091, Mobile Devices must comply with the following applicable limit for maximum permissible exposure (MPE) specified in FCC §1.1310 (e)(1), Table 1:

Equipment Use	Frequency Range	Power Density Limit	Average Time
General Population / Uncontrolled Exposure	1,500 – 100,000 [MHz]	1.0 [mW/cm ²]	<30 [min]

ISED Requirement

According to RSS-102 (Issue 6), clause 6.6, no routine RF Exposure Evaluation is required if the transmitter has a minimum separation distance to the user greater than 20cm and has an output power (e.i.r.p.) below the following threshold:

Transmitter Frequency Range	Transmitter	Operating Frequency Range	RF Exp. Evaluation Threshold
300MHz – 6GHz	Classic Bluetooth (DSS)	2400 – 2483.5 [MHz]	2.675 [W]
	Wireless LAN (DTS)		
	Wireless LAN (NII)	5150 – 5850 [MHz]	4.507 [W]

Note: RF Exposure Evaluation Threshold mentioned above is calculated according to the following formula:

$$\text{RF Exposure Evaluation Threshold} = 1.31 \times 10^{-2} f^{0.6834} [\text{W}]$$

Frequency f is used as the lowest frequency in each Operating Frequency Range as the worst case.

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Measurement Result

The maximum measured transmitter power is given in the following table:

Equipment Class	Transmitter	Conducted Output Power P_{out}		Maximum Antenna Gain [dBi]	e.i.r.p. Output Power [mW]	Distance [cm]	Power Density at 20cm [mW/cm ²]
		[dBm]	[mW]				
DSS	Bluetooth	0.87	0.0012	-1.83	0.8017	20	0.000159
DTS	Wireless LAN	20.85	0.1216	-1.93	77.9830	20	0.015514
NII	Wireless LAN	7.33	0.0054	-1.36	3.9537	20	0.000787

Note:

(*) Peak conducted output power was applied instead of average power.

Gray shading data shows each highest Power Density on each radio.

The power density S in mW/cm² is calculated according to the formula:

- $S = (P_{out} \cdot G) / (4\pi \cdot D^2)$, where
- P_{out} = antenna conducted output power in mW, G = antenna gain in linear scale
- D = distance between observation point and radiating structure in cm (here: 20cm).

Simultaneous Operation

As per the specification of the EUT, the following simultaneous cases are expected:

Case	Equipment Class	Transmitter	e.i.r.p. Output Power [mW]	Sum of e.i.r.p. Output Power [mW]	Power Density at 20cm [mW/cm ²]	Sum of Power Density [mW/cm ²]
Case 1	DSS	Bluetooth	0.8017	0.8017	0.000159	0.000159
Case 2	DTS	Wireless LAN	77.9830	77.9830	0.015514	0.015514
Case 3	NII	Wireless LAN	3.9537	3.9537	0.000787	0.000787
Case 4	DSS	Bluetooth	0.8017	78.7847	0.000159	0.015674
	DTS	Wireless LAN	77.9830		0.015514	
Case 5	DSS	Bluetooth	0.8017	4.7553	0.000159	0.000946
	NII	Wireless LAN	3.9537		0.000787	

Gray shading data shows the highest simultaneous operation case on the device, for details refer to the submitted operational description from the applicant.

Each MPE ratio for FCC and for ISED is calculated at the worst case operation at the next page.

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Evaluation for Simultaneous Transmissions

For FCC

Equipment Class	Transmitter	The worst Power Density at 20cm [mW/cm ²]	Power Density Limit [mW/cm ²]	Power Density: MPE Ratio to FCC Limit	Sum of Ratio of Power Density against Limit	Limit for Ratio
DSS	Bluetooth	0.000159	1	0.000159	0.015674	<1
DTS	Wireless LAN	0.015514	1	0.015514		

For ISSED

Equipment Class	Transmitter	The worst e.i.r.p. Output Power [mW]	RF Exp. Evaluation Threshold [W]	EIRP: MPE Ratio to ISSED Limit	Sum of ratio of e.i.r.p. Output Power against Threshold	Limit for Ratio
DSS	Bluetooth	0.8017	2.675	0.000300	0.029452	<1
DTS	Wireless LAN	77.9830	2.675	0.029153		

Conclusion

This transmitter is classified as Mobile Devices by the client.

The device complies with the FCC and ISSED RF Exposure requirements, since the maximum transmitter power density is below the FCC limit. And the e.i.r.p. output power is below the ISSED RF exposure evaluation exemption threshold. In additions, **MPE ratios** were calculated according to the KDB 447498 D01 (v06) and **were less than 1**.

Refer to the submitted test reports JP26DH30 001 (DSS) JP26TKQ6 001 (DTS) and JP26BN8I 001 (NII) for more details of measurement data.

Hence, the device can be qualified as exemption from Routine Environmental Evaluation.

RF Radiation Exposure Statement Caution: This Transmitter must be installed to provide a separation distance of at least 20 cm from all persons.