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Assessment Report

REP001909-3R1ARFWL

Type of assessment:

MPE Calculation report

Manufacturer:

Motorola Solutions, Inc.

Product description:

DH300

FCC ID:

AZ499FT7177

Model:

DHS1100BMPAA

Product marketing name(s) DH300

ISED certification number:

109U-99FT7177

Specification:

- FCC 47 CFR Part 1 Subpart I, §§1.1307, 1.1310
- FCC 47 CFR Part 2 Subpart J, §2.1091
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- ISED Canada RSS-102 Issue 5 Amendment 1, (February 2021)

RSS-102 Annex B - Declaration of RF Exposure Compliance

ATTESTATION: I attest that the information provided in Annex A is correct; that the Technical Brief was prepared and the information contained therein is correct; that the device evaluation was performed or supervised by me; that applicable measurement methods and evaluation methodologies have been followed; and that the device meets the SAR and/or RF field strength limits of RSS-102.

Date of issue: August 21, 2023

James Cunningham, EMC/WL Manager

Prepared by

Signature

Nemko USA Inc., a testing laboratory, is accredited by ANAB. The tests included in this report are within the scope of this accreditation.



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ISED Test Site	2040B-3

Prepared by	James Cunningham, EMC/WL Manager
Date	August 21, 2023
Signature	281

Limits of responsibility

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

This test report has been completed in accordance with the requirements of ISO/IEC 17025. All results contain in this report are within Nemko USA's ISO/IEC 17025 accreditation.

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Section 1 Evaluation summary

1.1 MPE calculation for standalone transmission

1.1.1 References, definitions, and limits

FCC §2.1091(d)

(2) For operations within the frequency range of 300 kHz and 6 GHz (inclusive), the limits for maximum permissible exposure (MPE), derived from whole-body SAR limits and listed in Table 1 in paragraph (e)(1) of this section, may be used instead of whole-body SAR limits as set forth in paragraphs (a) through (c) of this section to evaluate the environmental impact of human exposure to RF radiation as specified in §1.1307(b) of this part, except for portable devices as defined in §2.1093 of this chapter as these evaluations shall be performed according to the SAR provisions in §2.1093.

Frequency range	Electric field strength	Magnetic field strength	Power density	Averaging time
(MHz)	(V/m)	(A/m)	(mW/cm²)	(minutes)
	(i) Limits	for Occupational/Controlled Exp	osure	
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
300–1500			f / 300	<6
1500-100000			5	<6
	(ii) Limits for	General Population/Uncontrolled	d 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
300–1500			f / 1500	<30
1500-100000			1.0	<30

Table 1.1-1: Table 1 to §1.1310(e)(1)—Limits for Maximum Permissible Exposure (MPE)

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

RSS-102, Section 4

For the purpose of this standard, Industry Canada has adopted the SAR and RF field strength limits established in Health Canada's RF exposure guideline, Safety Code 6:

Frequency range	Electric field strength	Magnetic field strength	Power density	Reference Period
(MHz)	(V/m rms)	(A/m rms)	(W/m²)	(minutes)
	Lir	nits for Controlled Environment		
10–20	61.4	0.163	10	6
20–48	129.8 / f ^{0.25}	0.3444 / f ^{0.25}	44.72 / f ^{0.5}	6
48–100	49.33	0.1309	6.455	6
100–6000	15.60 f ^{0.25}	0.04138 f ^{0.25}	0.6455 f ^{0.5}	6
6000-15000	137	0.364	50	6
	Lim	its for Uncontrolled Environment	t	
10–20	27.46	0.0728	2	6
20–48	58.07 / f ^{0.25}	0.1540 / f ^{0.25}	8.944 / f ^{0.5}	6
48–300	22.06	0.05852	1.291	6
300–6000	3.142 f ^{0.3417}	0.008335 f ^{0.3417}	0.02619 f ^{0.6834}	6
6000-15000	61.4	0.163	10	6

Table 1.1-2: Table 4 to RSS-102— RF Field Strength Limits

Notes: f = frequency in MHz.



Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{PG}{4\pi R^2}$$

where: S = power density (mW/cm² or W/m²)

- P = power input to the antenna (mW or W)
 - 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 (cm or m)

1.1.2 EUT technical information

Notes:

- 1. EUT contains a dual-band 2.4 / 5 GHz Wi-Fi transmitter. This transmitter module is already certified (FCC ID: 2ABCB-RPI4B, ISED Certification number: 20953-RPI4B). Applicant declares that the Wi-Fi module will not transmit simultaneously with the 900 MHz transmitter. Therefore, no co-location assessment is required. For RF exposure related to the Wi-Fi transmitter, please refer to the original Wi-Fi module certification.
- 2. Maximum conducted power as documented in Nemko report REP013204-1R1TRFWL is 29.08 dBm. Per applicant's request, a value of 30 dBm (1 Watt) is used for MPE calculation as a worst-case assessment.

Prediction frequency	927.525 MHz
Antenna type	Integrated
Antenna gain	3.9 dBi (taken from antenna data sheet)
Number of antennas	1
Maximum transmitter conducted power	30 dBm (1 W) declared nominal power
Prediction distance	20 cm

1.1.3 MPE calculation

Fundamental transmit (prediction) frequency:	927 525 MHz	
Maximum measured conducted neak output nower:	30 dBm	
Cable and/or jumper loss:		
Maximum poak nowor at antonna input terminal:	20 dBm	
Maximum peak power at antenna input terminal.	100 %	
Duty cycle.	100 %	
Maximum calculated average power at antenna input terminal:		
Single Antenna gain (typical):	<u>3.9</u> dBi	
Number of antennae:	1	
l otal system gain:	<u>3.90</u> dBi	
	FCC limit:	ISED limit:
MPE limit for uncontrolled exposure at prediction frequency:	0.618350 mW/cm^2	0.279258 mW//cm ²
in 2 million <u>ancontrollea</u> exposure at prediction nequency.	6 183500 W/m ²	2.792581 W/m^2
MPE limit for controlled exposure at prediction frequency:	3 091750 mW/cm ²	1 965889 mW/cm ²
in a million controlled exposure at prediction requerty.	30.917500 W/m ²	19 658893 W/m ²
Minimum calculated prediction distance for compliance:	<u></u> 20 cm	<u></u>
	20 CIII	20 cm
Typical (declared) distance:	20 cm	<u>80</u> cm
According to the standard in t	0 400240	0.020522
Average power density at prediction frequency:	0.488349 mW/cm	0.030522 mW/cm
	4.883488 W/m ⁻	0.305218 W/m ⁻
Margin of Compliance for uncontrolled envirenment:	1.03 dB	9.61 dB
with Maximum promitted antenna gain:	4.93 dBi	13.51 dBi
with Maximum premitted antenna gam.		
Margin of Compliance for controlled envirenment:	8.01 dB	18.09 dB

The calculation is below the limit; therefore, the product is passing the RF Exposure requirements for the declared distance.