

Client: Thales Avionics, Inc.	Job Number: JD101779
Model: CWAP	T-Log Number: T103414
Contact: Marcus Madray	Project Manager: Irene Rademacher
Standard: FCC 15.207, 15.209, 15.247, 15.407, RSS-247	Project Coordinator: -
	Class: N/A

Maximum Permissible Exposure / SAR Exclusion

Test Specific Details

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Evaluation: 3/9/2018

Test Engineer: David Bare

General Test Configuration

Calculation uses the free space transmission formula:

$$S = (PG)/(4 \pi d^2)$$

Where: S is power density (W/m^2), P is output power (W), G is antenna gain relative to isotropic, d is separation distance from the transmitting antenna (m).

Summary of Results

Device complies with Power Density requirements at 20cm separation:	No
If not, required separation distance (in cm):	22

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client: Thales Avionics, Inc.	Job Number: JD101779
Model: CWAP	T-Log Number: T103414
Contact: Marcus Madray	Project Manager: Irene Rademacher
Standard: FCC 15.207, 15.209, 15.247, 15.407, RSS-247	Project Coordinator: -
	Class: N/A

FCC MPE Calculation

Use: General

Antenna: 2.4 GHz - Integral 8.9 dBi (effective gain); 5 GHz - Integral 10.7 dBi (effective gain)

Freq. MHz	EUT Power		Cable Loss Loss dB	Ant Gain dBi	Power at Ant dBm	EIRP mW	Power Density (S) at 22 cm mW/cm ²	MPE Limit mW/cm ²
2412	dBm	mW*						
2412	17.9	61.7	0	8.9	17.9	478.8	0.079	1.000
2437	22.9	193.9	0	8.9	22.9	1505.9	0.248	1.000
2462	15.5	35.5	0	8.9	15.5	275.5	0.045	1.000

For the cases where S > the MPE Limit

Freq. MHz	S @ 22 cm mW/cm ²	MPE Limit mW/cm ²	Distance where S <= MPE Limit	% of MPE Limit
2412	0.079	1.000	6.2cm	7.9%
2437	0.248	1.000	10.9cm	24.8%
2462	0.045	1.000	4.7cm	4.5%

Freq. MHz	EUT Power		Cable Loss Loss dB	Ant Gain dBi	Power at Ant dBm	EIRP mW	Power Density (S) at 22 cm mW/cm ²	MPE Limit mW/cm ²
5755	dBm	mW*						
5755	23.8	240.5	0	10.7	23.8	2819.8	0.464	1.000
5795	23.7	236.7	0	10.7	23.7	2775.4	0.456	1.000
5825	23.3	212.4	0	10.7	23.3	2490.7	0.410	1.000

For the cases where S > the MPE Limit

Freq. MHz	Power Density (S) at 22 cm mW/cm ²	MPE Limit at 20 cm mW/cm ²	Distance where S <= MPE Limit cm	% of MPE Limit
5755	0.464	1.000	15.0cm	46.4%
5795	0.456	1.000	14.9cm	45.6%
5825	0.410	1.000	14.1cm	41.0%

Worst case RF exposure is the sum of the ratios for the two radios, 24.8% + 46.4% = 71.2 % of the limit.

Client:	Thales Avionics, Inc.	Job Number:	JD101779
Model:	CWAP	T-Log Number:	T103414
Contact:	Marcus Madray	Project Manager:	Irene Rademacher
Standard:	FCC 15.207, 15.209, 15.247, 15.407, RSS-247	Project Coordinator:	-
		Class:	N/A

Industry Canada MPE Calculation

Use: General

Antenna: 2.4 GHz - Integral 8.9 dBi (effective gain); 5 GHz - Integral 10.7 dBi (effective gain)

USE THIS FOR 300-6000 MHz single transmitters (General use)

Freq. MHz	EUT Power		Cable Loss Loss dB	Ant Gain dBi	Power at Ant dBm	EIRP mW	Power Density (S) at 22 cm mW/cm ²	MPE Limit mW/cm ²
2412	dBm	mW*						
2412	17.9	61.7	0	8.9	17.9	478.76	0.079	0.537
2437	22.9	193.9	0	8.9	22.9	1505.88	0.248	0.540
2462	15.5	35.5	0	8.9	15.5	275.50	0.045	0.544

For the cases where S > the MPE Limit

Freq. MHz	Power Density (S) at 22 cm mW/cm ²	MPE Limit at 20 cm mW/cm ²	Distance where S ≤ MPE Limit cm	% of MPE Limit
2412	0.079	0.537	8.4	14.7%
2437	0.248	0.540	14.9	45.8%
2462	0.045	0.544	6.3	8.3%

Freq. MHz	EUT Power		Cable Loss Loss dB	Ant Gain dBi	Power at Ant dBm	EIRP mW	Power Density (S) at 22 cm mW/cm ²	MPE Limit mW/cm ²
5755	dBm	mW*						
5755	23.8	240.5	0	10.7	23.8	2819.82	0.464	0.972
5795	23.7	236.7	0	10.7	23.7	2775.37	0.456	0.977
5825	23.3	212.4	0	10.7	23.3	2490.70	0.410	0.980

For the cases where S > the MPE Limit

Freq. MHz	Power Density (S) at 22 cm mW/cm ²	MPE Limit at 20 cm mW/cm ²	Distance where S ≤ MPE Limit cm	% of MPE Limit
5755	0.464	0.972	15.2	47.7%
5795	0.456	0.977	15.0	46.7%
5825	0.410	0.980	14.2	41.8%

Worst case RF exposure is the sum of the ratios for the two radios, 45.8% + 47.7% = 93.5% of the limit.

Worst case MPE value is 0.248 + 0.464 = 0.712 mW/cm² (7.12 W/m²)