

RF EXPOSURE EVALUATION

EUT Specification

EUT	DVD suction a top
Frequency band (Operating)	☐ WLAN: 2.412GHz ~ 2.462GHz ☐ WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz ☐ WLAN: 5.745GHz ~ 5.825GHz ☒ Others(Bluetooth: 2.402GHz ~ 2.480GHz)
Device category	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation) ☐ Others ____
Antenna diversity	☐ Single antenna ☒ Multiple antennas ☐ Tx diversity ☐ Rx diversity ☐ Tx/Rx diversity
Max. output power	BT1: -3.907dBm(0.41mW) BT2: -1.893dBm(0.65mW)
Antenna gain	BT1: 0dBi BT2: 0dBi
Evaluation applied	☒ MPE Evaluation ☐ SAR Evaluation

Limits for Maximum Permissible Exposure (MPE)

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)
300-1500	--	--	F/1500
1500-100000	--	--	1

Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where

P_d = Power density in mW/cm^2

P_{out} = output power to antenna in Mw

G = gain of antenna in linear scale

$\pi = 3.1416$

R = distance between observation point and center of the radiator in cm

P_d the limit of MPE, $1mW/cm^2$. If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

Measurement Result

BT1

Channel	Channel Frequency (MHz)	Max Output power (dBm)	Tolerance	Max Tune-UP power (mW)	Power density at 20cm (mW/cm^2)	Power density Limits (mW/cm^2)
Test mode: GFSK						
Low	2402	-6.946	± 0.1	0.21	$4.11e-5$	1
Middle	2441	-5.268	± 0.1	0.30	$6.05e-5$	1
High	2480	-3.907	± 0.1	0.42	$8.28e-5$	1
Test mode: $\pi/4$ -DQPSK						
Low	2402	-7.378	± 0.1	0.19	$3.72e-5$	1
Middle	2441	-5.691	± 0.1	0.28	$5.49e-5$	1
High	2480	-4.301	± 0.1	0.38	$7.56e-5$	1
Test mode: 8DPSK						
Low	2402	-7.384	± 0.1	0.19	$3.72e-5$	1
Middle	2441	-5.636	± 0.1	0.28	$5.56e-5$	1
High	2480	-4.320	± 0.1	0.38	$7.53e-5$	1

BT2

Channel	Channel Frequency (MHz)	Max Output power (dBm)	Tolerance	Max Tune-UP power (mW)	Power density at 20cm (mW/cm ²)	Power density Limits (mW/cm ²)
Test mode: GFSK						
Low	2402	-6.209	±0.1	0.24	4.87e-5	1
Middle	2441	-3.261	±0.1	0.48	9.61e-5	1
High	2480	-1.893	±0.1	0.66	1.32e-4	1
Test mode: π/4-DQPSK						
Low	2402	-6.925	±0.1	0.21	4.13e-5	1
Middle	2441	-3.911	±0.1	0.42	8.27e-5	1
High	2480	-2.495	±0.1	0.58	1.15e-4	1
Test mode: 8DPSK						
Low	2402	-6.510	±0.1	0.23	4.55e-5	1
Middle	2441	-3.440	±0.1	0.46	9.22e-5	1
High	2480	-2.048	±0.1	0.64	1.27e-4	1

Wen BT1 and BT2 work together:

Power density at 20cm (mW/cm ²) BT1	Power density at 20cm (mW/cm ²) BT2	Power density at 20cm (mW/cm ²) Total	Power density Limits (mW/cm ²)
8.28e-5	1.32e-4	2.148e-4	1