

1. MAXIMUM PERMISSIBLE EXPOSURE (MPE)

1.1. Standard Applicable

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

This is a Mobile device, the MPE is required.

According to §1.1310 and §2.1093 RF exposure is calculated.

Limits for Maximum Permissive Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
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
300-1500	/	/	F/1500	30
1500-15000	/	/	1.0	30

F = frequency in MHz

* = Plane-wave equipment power density

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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SGS Taiwan Ltd.

台灣檢驗科技股份有限公司

No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號

t (886-2) 2299-3279

f (886-2) 2298-0488

www.tw.sgs.com

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1.2. Maximum Permissible Exposure (MPE) Evaluation

Max. Rated Avg. Power + Max. Tolerance ($\pm 0.5\text{dBm}$): 2.34 dBm

Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)
2402	1.53	0.0014	1
2441	1.84	0.0015	1
2480	1.73	0.0015	1

MPE Prediction (GFSK)

Prediction of MPE limit at a given distance

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

$$S = PG/4\pi R^2$$

Where: S = Power density

P = Power input to antenna

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

Maximum average output power at antenna input	2.34	(dBm)
Maximum average output power at antenna input	1.7139573	(mW)
Duty cycle:	100	(%)
Maximum Pav :	1.7139573	(mW)
Antenna gain (Maximum):	3.92	(dBi)
Antenna gain (linear):	2.4660393	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	2441	(MHz)
MPE limit for uncontrolled exposure at prediction	1	(mW/cm ²)
Power density at predication frequency at 20 (cm)	0.0008413	(mW/cm ²)

Measurement Result

The predicted power density level at 20 cm is 0.001 mW/cm². This is below the uncontrolled exposure limit of 1 mW/cm² at 2441MHz.

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1.3. Maximum Permissible Exposure (MPE) Evaluation

Max. Rated Avg. Power + Max. Tolerance ($\pm 0.5\text{dBm}$): 2.83 dBm

Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)
2402	2.01	0.0016	1
2441	2.33	0.0017	1
2480	2.14	0.0016	1

MPE Prediction ($\pi 4\text{DQPSK}$)

Prediction of MPE limit at a given distance

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

$$S = PG/4\pi R^2$$

Where: S = Power density

P = Power input to antenna

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

Maximum average output power at antenna input	2.83	(dBm)
Maximum average output power at antenna input	1.9186687	(mW)
Duty cycle:	100	(%)
Maximum Pav :	1.9186687	(mW)
Antenna gain (Maximum):	3.92	(dBi)
Antenna gain (linear):	2.4660393	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	2441	(MHz)
MPE limit for uncontrolled exposure at prediction	1	(mW/cm ²)
Power density at predication frequency at 20 (cm)	0.0009418	(mW/cm ²)

Measurement Result

The predicted power density level at 20 cm is 0.001 mW/cm². This is below the uncontrolled exposure limit of 1 mW/cm² at 2441MHz.

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1.4. Maximum Permissible Exposure (MPE) Evaluation

Max. Rated Avg. Power + Max. Tolerance ($\pm 0.5\text{dBm}$): 3.08 dBm

Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)
2402	2.07	0.0016	1
2441	2.58	0.0018	1
2480	2.29	0.0017	1

MPE Prediction (8-DPSK)

Prediction of MPE limit at a given distance

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

$$S = PG/4\pi R^2$$

Where: S = Power density

P = Power input to antenna

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

Maximum average output power at antenna input	3.08	(dBm)
Maximum average output power at antenna input	2.032357	(mW)
Duty cycle:	100	(%)
Maximum Pav :	2.032357	(mW)
Antenna gain (Maximum):	3.92	(dBi)
Antenna gain (linear):	2.4660393	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	2441	(MHz)
MPE limit for uncontrolled exposure at prediction	1	(mW/cm ²)
Power density at predication frequency at 20 (cm)	0.0009976	(mW/cm ²)

Measurement Result

The predicted power density level at 20 cm is 0.001 mW/cm². This is below the uncontrolled exposure limit of 1 mW/cm² at 2441MHz.

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