1.   Maximum Permissible Exposure (MPE)

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 §2.1091 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

ID: YOR-RT1900AC

Maximum Permissible Exposure (MPE) Evaluation
2.4GHz mode:

The worst case of Average power: refer to FCC test report for detail measurement date.

Power measurement:

802.11b

Cable loss = 0		Output Power		Limit
CH	Frequency	Detector		(dBm)
	(MHz)	PK	AV	
		(dBm)	(dBm)	
1	2412	18.16	14.36	
6	2437	19.21	15.44	30
11	2462	18.12	14.25	

Prediction of MPE limit at a given distance

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

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

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 AV output power at antenna input terminal:	15.44	(dBm)
Power Tolerance:	2.00	dB
Maximum AV output power at antenna input terminal:	55.46	(mW)
Duty cycle:	100.00	(%)
Maximum Pav :	55.46	(mW)
Antenna gain (typical):	3.63	(dBi)
Maximum antenna gain:	2.31	(numeric)
Prediction distance:	20.00	(cm)
MPE limit for uncontrolled exposure at prediction	1.00	(mW/cm2)
Power density at predication frequency at 20 (cm)	0.0255	(mW/cm^2)

Measurement Result

The predicted power density level at 20 cm is 0.0255 mW/cm^2. This is below the uncontrolled exposure limit of 1 mW/cm^2.

ID: YOR-RT1900AC

5150MHz – 5250MHz Mode:

The worst case of Average power N HT20 mode: refer to FCC test report for detail measurement date.

Power measurement:

3*3 MIMO

Mode	Freq(MHz)	channel	Output Chain (dBm)			Combine Output Power (dBm)	Limit(dBm)	Result
			chain A	chain B	chain C			
N HT20	5170	34	7.25	7.57	7.66	12.27	29	Pass
	5200	40	8.32	7.00	7.92	12.55	29	Pass
	5240	48	8.27	6.78	7.54	12.34	29	Pass

Prediction of MPE limit at a given distance

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

$S = PG/4 \ R^2$

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 AV output power at antenna input terminal:	12.55	(dBm)
Power Tolerance:	2.00	dB
Maximum AV output power at antenna input terminal:	28.51	(mW)
Duty cycle:	100.00	(%)
Maximum Pav :	28.51	(mW)
Antenna gain (typical):	6.12	(dBi)
Maximum antenna gain:	4.09	(numeric)
Prediction distance:	20.00	(cm)
MPE limit for uncontrolled exposure at prediction	1.00	(mW/cm2)
Power density at predication frequency at 20 (cm)	0.0232	(mW/cm^2)

Measurement Result

The predicted power density level at 20 cm is 0.0232 mW/cm^2. This is below the uncontrolled exposure limit of 1 mW/cm^2.

International Standards Laboratory   **Report Number: ISL-15LR055FENII-R1**

ID: YOR-RT1900AC

5725MHz – 5850MHz Mode:

The worst case of Average power N HT20 mode: refer to FCC test report for detail measurement date.

Power measurement:

3*3 MIMO

Mode	Freq(MHz)	channel	Output Chain (dBm)			Combine Output Power (dBm)	Limit(dBm)	Result
			Chain A	chain B	Chain C			
N HT20	5745	149	9.98	9.21	7.70	13.83	29	
	5785	157	9.92	9.05	7.53	13.71	29	Pass
	5825	165	9.85	8.54	7.49	13.51	29	Pass

Prediction of MPE limit at a given distance

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

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

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 AV output power at antenna input terminal:	13.83	(dBm)
Power Tolerance:	2.00	dB
Maximum AV output power at antenna input terminal:	38.28	(mW)
Duty cycle:	100.00	(%)
Maximum Pav :	38.28	(mW)
Antenna gain (typical):	6.12	(dBi)
Maximum antenna gain:	4.09	(numeric)
Prediction distance:	20.00	(cm)
MPE limit for uncontrolled exposure at prediction	1.00	(mW/cm2)
Power density at predication frequency at 20 (cm)	0.0312	(mW/cm^2)

Measurement Result

The predicted power density level at 20 cm is 0.0312 mW/cm^2. This is below the uncontrolled exposure limit of 1 mW/cm^2.

ID: YOR-RT1900AC

5250MHz – 5350MHz Mode:

The worst case of Average power N HT20 mode: refer to FCC test report for detail measurement date.

Power measurement:

3*3 MIMO

Mode	Freq(MHz)	Output Chain (dBm)			Combine Output Power (dBm)	Limit(dBm)	Result
		chain A	chain B	chain C			
N HT20	5260	7.81	8.03	6.71	12.33	19.08	Pass
	5280	7.9	8.11	6.96	12.46	19.08	Pass
	5320	8.14	8.23	7.04	12.61	19.08	Pass

Prediction of MPE limit at a given distance

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

$S = PG/4 \ R^2$

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 AV output power at antenna input terminal:	12.61	(dBm)
Power Tolerance:	2.00	dB
Maximum AV output power at antenna input terminal:	28.91	(mW)
Duty cycle:	100.00	(%)
Maximum Pav :	28.91	(mW)
Antenna gain (typical):	6.12	(dBi)
Maximum antenna gain:	4.09	(numeric)
Prediction distance:	20.00	(cm)
MPE limit for uncontrolled exposure at prediction	1.00	(mW/cm2)
Power density at predication frequency at 20 (cm)	0.0235	(mW/cm^2)

Measurement Result

The predicted power density level at 20 cm is 0.0235 mW/cm^2. This is below the uncontrolled exposure limit of 1 mW/cm^2.

International Standards Laboratory   **Report Number: ISL-15LR055FENII-R1**

ID: YOR-RT1900AC

5470MHz – 5725MHz Mode:

The worst case of Average power N HT20 mode: refer to FCC test report for detail measurement date.

Power measurement:

3*3 MIMO

Mode	Freq(MHz)	Output Chain (dBm)			Combine Output Power (dBm)	Limit(dBm)	Result
		Chain A	chain B	Chain C			
N HT20	5500	9.15	9.37	8.03	13.66	19.08	
	5580	9.41	9.67	8.34	13.95	19.08	Pass
	5710	8.81	9.02	7.74	13.33	19.08	Pass

Prediction of MPE limit at a given distance

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

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

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 AV output power at antenna input terminal:	13.95	(dBm)
Power Tolerance:	2.00	dB
Maximum AV output power at antenna input terminal:	39.36	(mW)
Duty cycle:	100.00	(%)
Maximum Pav :	39.36	(mW)
Antenna gain (typical):	6.12	(dBi)
Maximum antenna gain:	4.09	(numeric)
Prediction distance:	20.00	(cm)
MPE limit for uncontrolled exposure at prediction	1.00	(mW/cm2)
Power density at predication frequency at 20 (cm)	0.0321	(mW/cm^2)

Measurement Result

The predicted power density level at 20 cm is 0.0321 mW/cm^2. This is below the uncontrolled exposure limit of 1 mW/cm^2.

ID: YOR-RT1900AC

Simultaneous transmissions:

2.4GHz + 5725MHz – 5850MHz mode:

$$0.0255 + 0.0312 = 0.0567 \text{ mW/cm}^2.$$

2.4GHz + 5250MHz – 5350MHz mode:

$$0.0255 + 0.0235 = 0.049 \text{ mW/cm}^2.$$

2.4GHz + 5470MHz – 5725MHz mode:

$$0.0255 + 0.0321 = 0.0576 \text{ mW/cm}^2.$$

The predicted power density level at 20 cm is 0.0576 mW/cm^2. This is below the uncontrolled exposure limit of 1 mW/cm^2.

~ End of Report ~