RF exposure statement

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

According to §1.1310 and §2.1091 RF exposure is calculated.
Limits for General Population/Uncontrolled Exposure

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 – 100 000	-	-	1.0	30

※ f = frequency in MHz

1. Friis transmission formula

$$P_d = (P_{out} \times G) / (4\pi r^2)$$

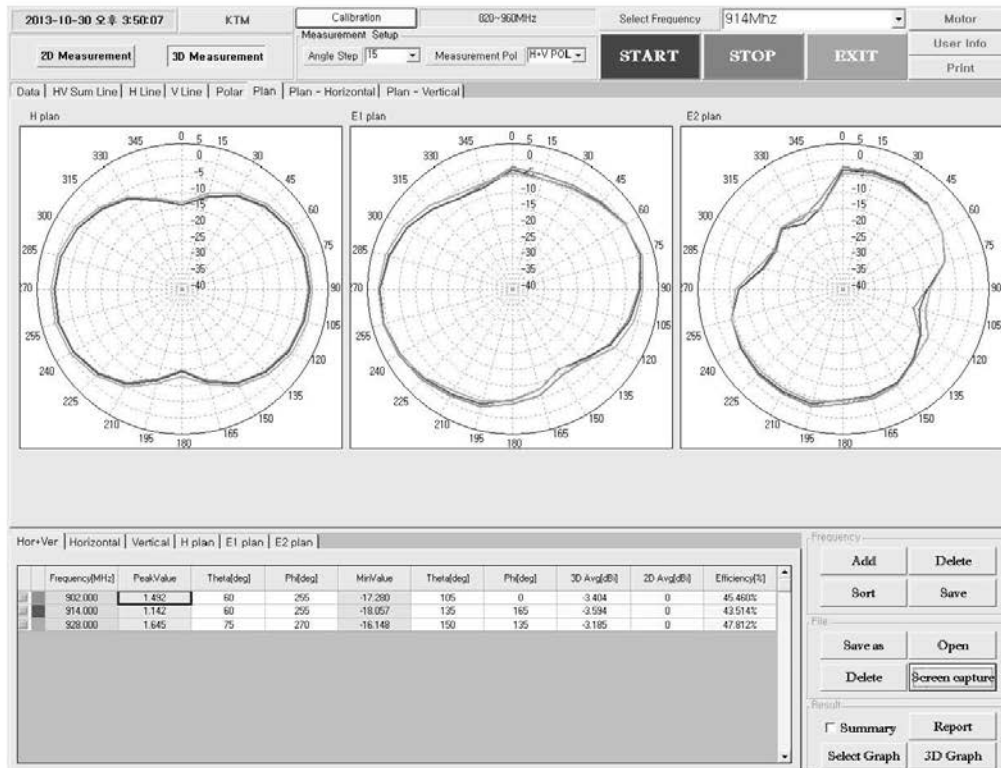P_d = Power density

P_{out} = power input to antenna

G = power gain

r = distance to the center of radiation of the antenna

2. Information of Antenna

• **Model Name : HWC-914DP-RSMA-3M**

3. Calculation of MPE at 20 cm

DC Power	Frequency [MHz]	Max.Average Tune up Power [dBm]	Antenna Gain [dBi]	EIRP		Power density At 20 cm [mW/cm^2]	Limit [mW/cm^2]
				[dBm]	[mW]		
12 / 24 V	902.5	26	1.64	27.64	580.76	0.11559	1.0
	914.5			27.64	580.76	0.11559	
	927.5			27.64	580.76	0.11559	

• DC 12.0 / 24.0 V

The maximum conducted power is 26.00 dBm; antenna is fix-mounted with a maximum gain of 1.64 dBi gain.
Therefore, to comply with RF Exposure Requirement, the MPE is calculated.
The maximum Peak EIRP calculated is 27.64 dBm.
The Power Density can be calculated using the formula.

It is considered that 20 cm is the minimum distance that a user can go closer to the EUT.
At 0.2 m, S = 0.11559 mW/cm^2, which is below the MPE Limit of 1 mW/cm^2