

Prüfbericht - Nr.:
02422012 001

Seite 1 von 1

Test Report No.

Page 1 of 1

Radio Frequency Human Exposure Evaluation:

The highest RF output power of the EUT was measured below 17.98 dBm at 5745 MHz. According to §1.1310 of the FCC rules, the power density limit for General Population/Uncontrolled Exposure at 5745 MHz is 1.0mW/cm². The maximum permissible exposure (MPE) is calculated to show the required separation distance that must be maintained during installation to maintain compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$S = P G / (4 * \rho * R^2)$$

where:

S = Power Density

P = Output Power at the Antenna Terminals

G = Gain of Transmit Antenna (linear gain)

R = Distance from Transmitting Antenna

To solve for the minimum mounting distance required:

Cable loss : 0.6 dB considered for 2 meter for Type LMR-600 Cable.

Connector Loss : 0.4 dB (assumption)

Total cable Loss : 0.6 + 0.4 = 1.0 dB

LMP-600 Cable declared by client in Antenna Installation guide.

$$R = \text{Sqrt} ((P G) / (4 * \rho * S))$$

For the EUT, the calculation is as follows:

S = 1.0 mW/cm²

P = Conducted Output power : 17.98 dBm – 1.00 dB = 16.98 dBm

P = Total output Power = 49.89 mW

G = Worst Case Gain = 30dBi = anti-log(30/10) = 1000.0

$$R = \text{Sqrt} ((49.89 * 1000) / (4 * \rho * 1))$$

R = 63.02 cm (Based on continuous transmission)

Frequency, MHz	Maximum Gain, dBi	Numeric Gain	Power, dBm	Cable Attenuation, dB	Net Power, dBm	Power, mWatt	Minimum Distance Required, cm	Antenna
5745	30.00	1000.00	17.98	1.00	16.98	49.89	63.02	Panel
5745	23.50	223.87	17.98	1.50	16.48	44.46	28.15	Panel
5745	21.00	125.89	17.98	0.00	17.98	62.81	25.08	Panel
5745	17.00	50.12	17.98	1.00	16.98	49.89	14.11	Sector