

Maximum permissible exposure (MPE) measurement according to FCC CFR 47part 2, §2.1091

The BSR/SPR 700MHz transceiver is classified as mobile, the measurements were done at the maximum available to the end user power settings (output power 31.83 dBm), under normal modulation condition at minimum data rate at the mid frequency of the assigned band. Each unit was connected to the antenna providing the maximum directional gain, at the OATS with wideband E-field probe FB2080 (80 MHz - 40 GHz), manufactured by Amplifier research connected to a field monitor via fiber optic cable.

Limit for power density for general population/uncontrolled exposure for 300 – 1500 MHz range is $f/1500 \text{ mW/cm}^2$:

$$P = 700/1500 = 0.47 \text{ mW/cm}^2$$

The E-field probe was pointed to the EUT antenna zero azimuth at a distance shown in Table No.1 and slowly moved toward the EUT until E-field of 42.1 V/m equivalent to the maximum permitted power density 0.47 mW/cm^2 was monitored. The obtained antenna to probe distance was recorded as a minimum separation distance.

Additional measurement were taken at different distances.

Table No.1 MPE measurement test results

BSR700 MHz with 14 dBi gain external antenna

No.	Field strength, V/m	Power density, mW/cm^2	Test distance, m	Limit, mW/cm^2	Margin, mW/cm^2	Verdict
1	5.6	0.008	4.0	0.47	0.462	Pass
2	6.8	0.012	3.0		0.458	Pass
3	8.6	0.020	2.0		0.450	Pass
4	9.5	0.024	1.5		0.446	Pass
5	11.0	0.032	1.0		0.438	Pass
6	16.0	0.068	0.5		0.402	Pass
7	42.1	0.47	0.15		0	Pass

SPR700 MHz with 15 dBi gain external antenna

No.	Field strength, V/m	Power density, mW/cm^2	Test distance, m	Limit, mW/cm^2	Margin, mW/cm^2	Verdict
1	4.4	0.0051	4.0	0.47	0.4649	Pass
2	7.2	0.0140	3.0		0.456	Pass
3	8.1	0.0174	2.5		0.4526	Pass
4	9.0	0.0215	2.0		0.4485	Pass
5	11.0	0.0321	1.5		0.4379	Pass
6	12.5	0.0414	1.0		0.4286	Pass
7	17.3	0.0800	0.5		0.3900	Pass
8	42.1	0.47	0.1		0	Pass

Conclusion: Safe distance for BSR700 MHz is 15 cm, for SPR700 MHz – 10 cm.