Sample Field Computations:

FUNDAMENTAL

Refer to: (a) Table 5.1 (f >= 40 GHz); line 3; p. 13.
(b) Section 5.2; Figure 5.4, peak power measurement; p. 5.
(c) Table 4.1; limit; p. 3; ($60\ \mu W/cm^2 = -12.2\ dBm/cm^2$)
(d) Section 6.1; peak-to-average ratio, p. 6; (51.0 dBm)

The approach is to follow the standard equations for computing the field, i.e. $dB(\mu V/m)$, and then convert to power density. See equations and conversion factors in Section 5.3, p. 5 of the report.

To compute the field strength we use:

$$
\begin{aligned}
E_3\ dB(\mu V/m) &= 107 + Pr + Ka + Kg + Ke \\
&= 107 - 11.0 + 45.3 + 0 - 20 \\
&= 121.3\ dB(\mu V/m) \\
&= -34.5\ dBm/cm^2
\end{aligned}
$$

The limit is $60\ \mu W/cm^2 = -12.2\ dBm/cm^2$

SPURIOUS

Here we present computation for the LO emission at 12.70 GHz.

Refer to: (a) Table 5.1 (f < 40 GHz); line 6; p. 12.
(c) Table 4.1; limit; p. 3; ($54\ dB(\mu V/m)$)

Using the same wave equation as above:

$$
\begin{aligned}
E_3\ dB(\mu V/m) &= 107 + Pr + Ka + Kg + Ke \\
&= 107 - 57.7 + 29.5 - 31 + 0 \\
&= 47.8\ dB(\mu V/m)
\end{aligned}
$$

The limit is $54.0\ dB(\mu V/m)$