

MicroTransponder Serenity model 1000

Why there is no tuning of RF circuitry in production:

The tests in production are performed using a GTEM cell (TESCOM, TC-5062A). The IPG is placed inside the cell and a reference programmer is connected to the cell's port through an adjustable attenuator.

The tests are the following:

- 1) Communication through 8 channels.
 - a. Shall pass when adjusting the attenuator to 18 dB
 - b. Shall fail when adjusting the attenuator to 32 dB
- 2) Reception. Attenuation to the minimum. Programmer transmits a CW through channels 0, 3, 6 and 9, one at a time. IPG shall receive the appropriate sequence through those channels. SNR shall be high enough.
- 3) Transmission. Attenuation to the minimum. IPG transmits a CW through channels 2 and 7, one at a time. Programmer measures signal level in channels 1 to 8 each time:
 - a. Signal level in selected channel shall be high enough
 - b. Signal level in not selected channels shall be low: at least 20 dB less than the selected channel.

The following table tries to explain why there is no need for tuning in production:

Tunable characteristic	Limit	Fact	Test in Production
Tx Power	-16 dBm	-22.6 dB margin for unit tested in NTS	Production test #3. Test focuses on detecting Tx power too weak in selected channel. The maximum allowed Tx power is considered unachievable when the device is implanted.
Frequency	100 ppm	Information provided by the manufacturer of the transceiver: < 70 ppm between programmer and IPG frequencies for correct communication	Production test #1. Regarding frequency stability, voltage monitor is tested (must reset @ 2.3V ± 50mV).
Spurious emissions	Several requirements	See test results.	Production test #3 checks levels inside the MedRadio band.