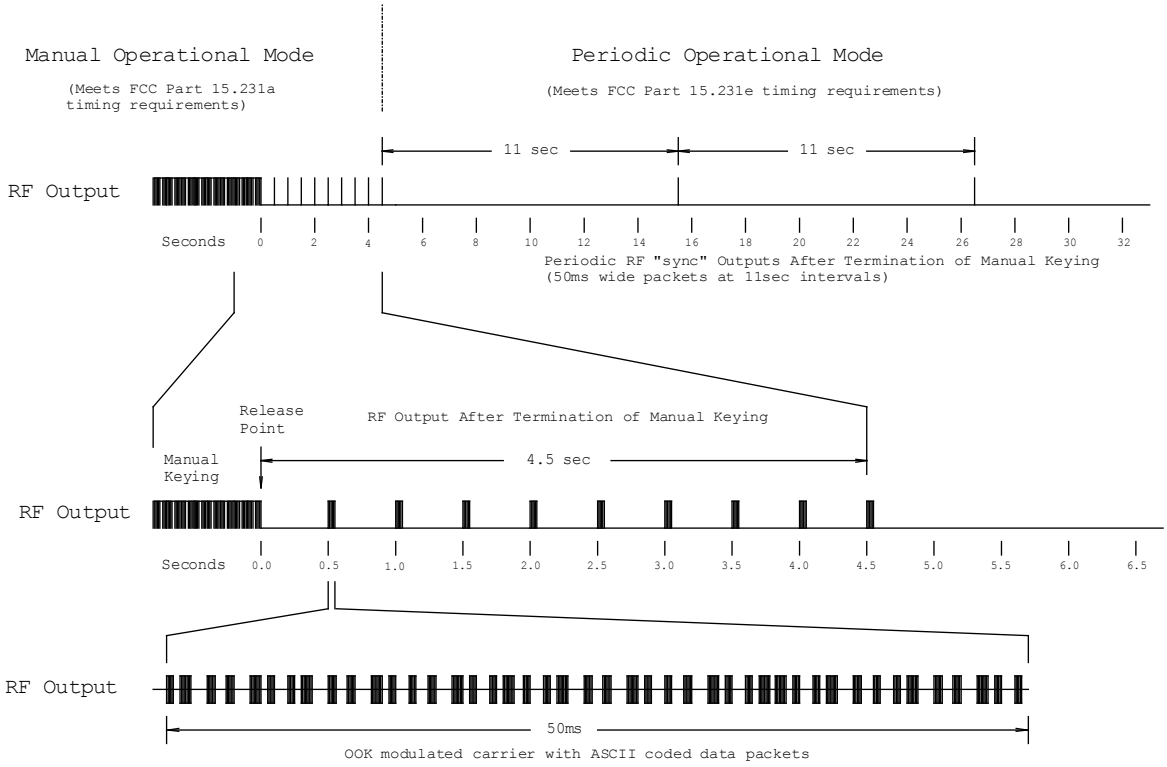
Transmitter Timing

Please refer to the Transmitter Timing Diagram for the following description.

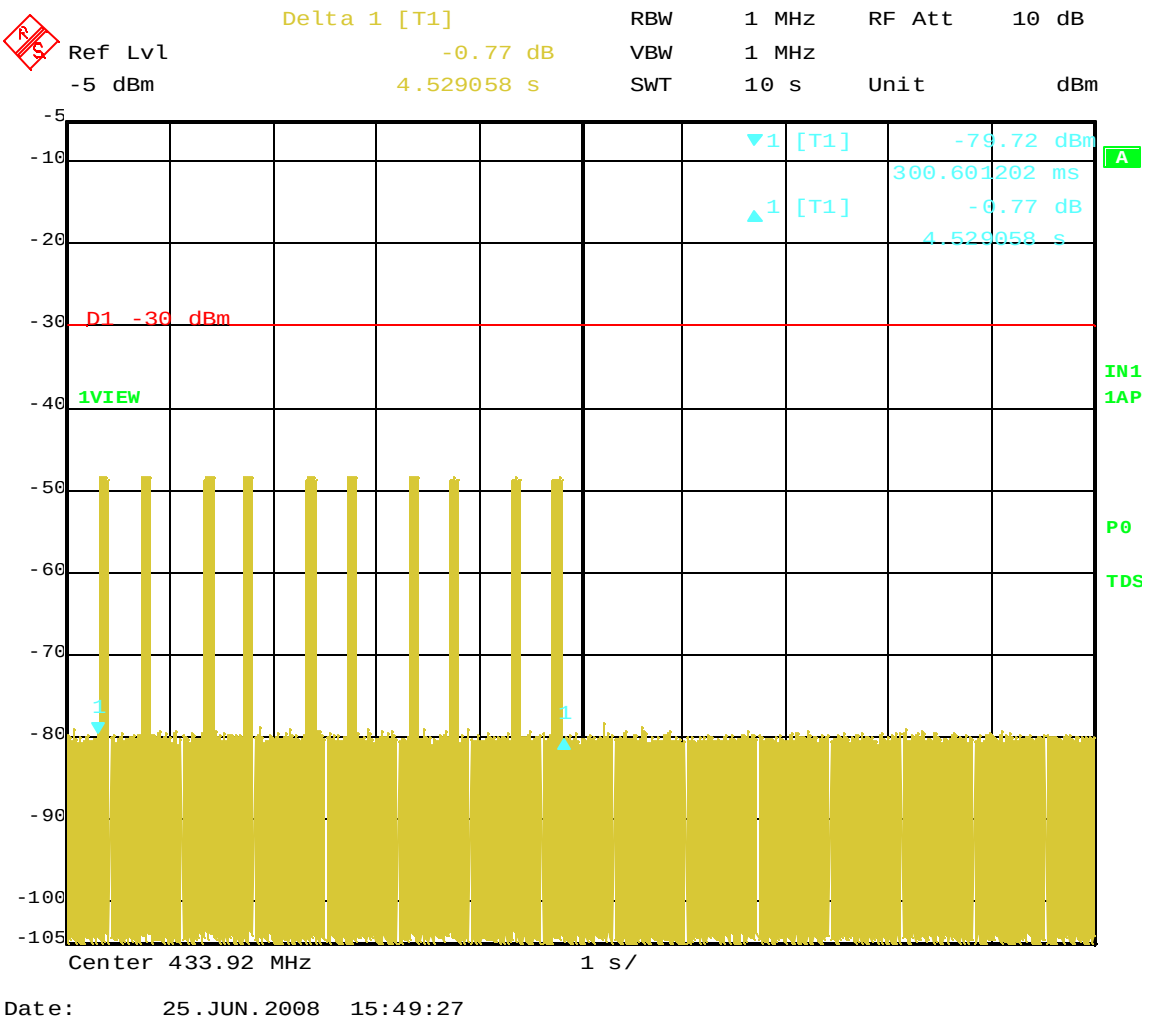
The RF data transmitted by the handbox unit is organized in data packets. Each data packet consist of a 50ms-wide string of ASCII characters transmitting at a 4800 baud rate. The data packets are spaced apart for optimal operation in terms of low power consumption, FCC requirements, and functionality. The transmitter module is normally in a power-down state and is enabled by the MCU only when data packets are ready to be sent.

When manually keyed (a control knob or switch is asserted), the transmitter is considered to be operating in the "Manual Operational Mode". In this mode, the data packets are transmitted continuously. The spacing between each data packet is typically 500ms. This spacing is required in order to decrease the probability of interference when multiple wireless controllers are being operated within range of each other. The only exception to this is when gain data is being changed while the exposure time is set to one second or less. In this case the data packets are spaced about 5ms apart in order to facilitate real-time video control. Upon termination of manual keying, data packet transmission is repeated for 4.5 seconds. This increases the probability for success of reception, plus it complies with the FCC part 15.231(a) requirement: "deactivate the transmitter within not more than 5 seconds of being released".

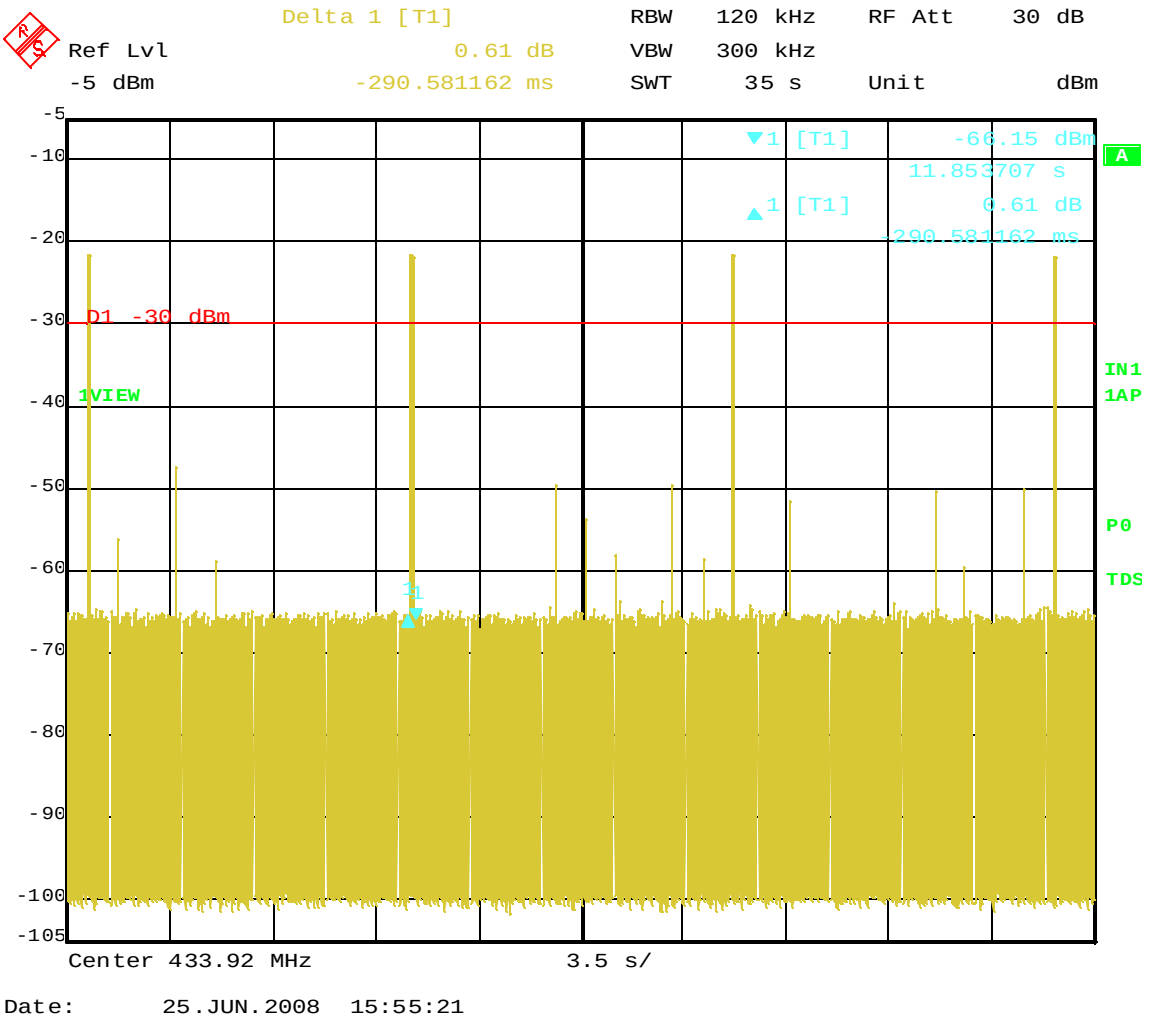
When the handbox is not being keyed, the transmitter is in the "Periodic Operational Mode". The receiver unit needs to be periodically synchronized by the handbox unit, therefore a "sync" data packet is transmitted once every 11 seconds to meet this requirement. This timing also complies with the FCC part 15.231(e) requirement: "the silent period between transmissions shall be at least 30 times the duration of the transmission but in no case less than 10 seconds"



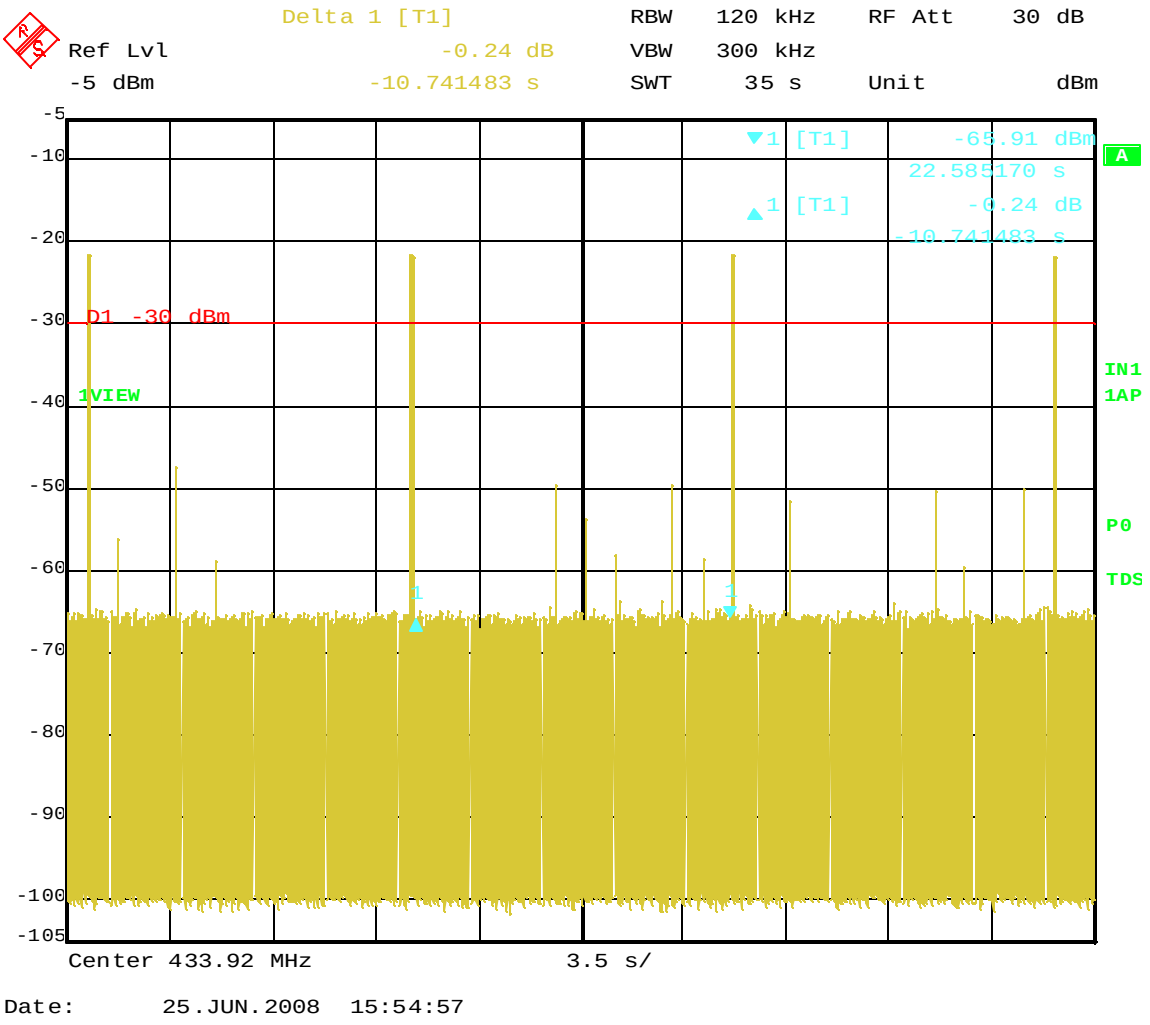
Transmitter Timing Diagram



The EUT shuts off before 5 seconds when the transmitter is activated manually. (Manual Operational Mode)



The on time when polling is less than 1 second.



The EUT has at least 10 seconds between transmissions when polling. (Periodic Operational Mode)