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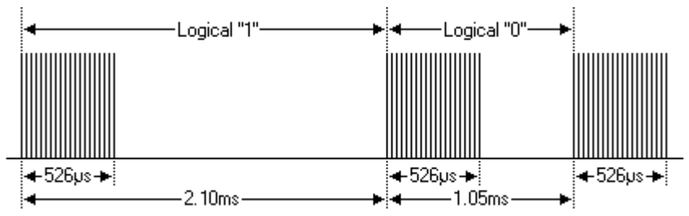
JVC Protocol

JVC also has its own IR protocol, although I have seen several different protocols being used in a diversity of JVC equipment. This is probably the case for equipment which JVC haven't made themselves. Most genuine JVC equipment is controlled by the protocol described on this page though.
All information about this protocol was collected using a JVC PTU94023B service remote control and a digital storage oscilloscope.

Features

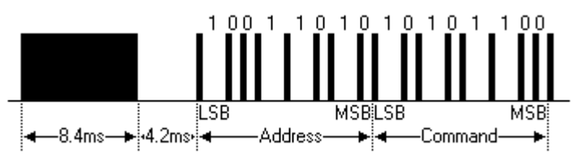
- 8 bit address and 8 bit command length
- Pulse distance modulation
- Carrier frequency of 38kHz
- Bit time of 1.05ms or 2.10ms

Modulation

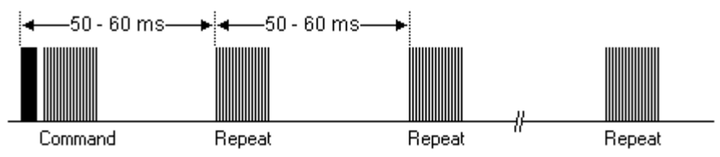


The JVC protocol uses pulse distance encoding of the bits. Each pulse is a 526µs long 38kHz carrier burst (about 20 cycles). A logical "1" takes 2.10ms to transmit (equivalent of 80 cycles), while a logical "0" is only 1.05ms (equivalent of 40 cycles). The recommended carrier duty cycle is 1/4 or 1/3.

Protocol



The picture above shows a typical pulse train of the JVC protocol. With this protocol the LSB is transmitted first. In this case Address $59 and Command $35 is transmitted. A message is started by a 8.4ms AGC burst (equivalent of 320 cycles), which was used to set the gain of the earlier IR receivers. This AGC burst is then followed by a 4.2ms space (equivalent of 160 cycles), which is then followed by the Address and Command. The total transmission time is variable because the bit times are variable.



An IR command is transmitted every 50 to 60ms for as long as the key on the remote is held down. Only the first command is preceded by the 8.4ms pre-pulse and its accompanying 2.4ms space. This way the receiver can determine whether a key is pressed for the first time or is held down.

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