

West Hollywood Station DCS Radio Room Survey



17 July 2015

The radios and antennas in the West Hollywood DCS room were tested on 25 June 2015. The inspection was performed by technical team members Deane Bouvier S-50 and Mark Stevenson K-220 to document what works and what doesn't work in preparation for writing a Technical Team Repair Request. The original documented need was to provide a frequency agile 2m radio for the one that was erroneously removed, but the any Repair Request should deal with all issues that might exist. The results are shown by position from left to right.

POSITION 1: Kenwood TM-641A, 2 meter (no antenna) / 220 MHz
LASD Inventory: 1317



Measurement Results:

The Kenwood TM641 has two RF slices, one for 2m and one for 220 with an option for a third band. The radio functions on both bands with rated power out. There is no antenna on the 2m port. The 220 antenna performance was adequate, but had 2.4:1

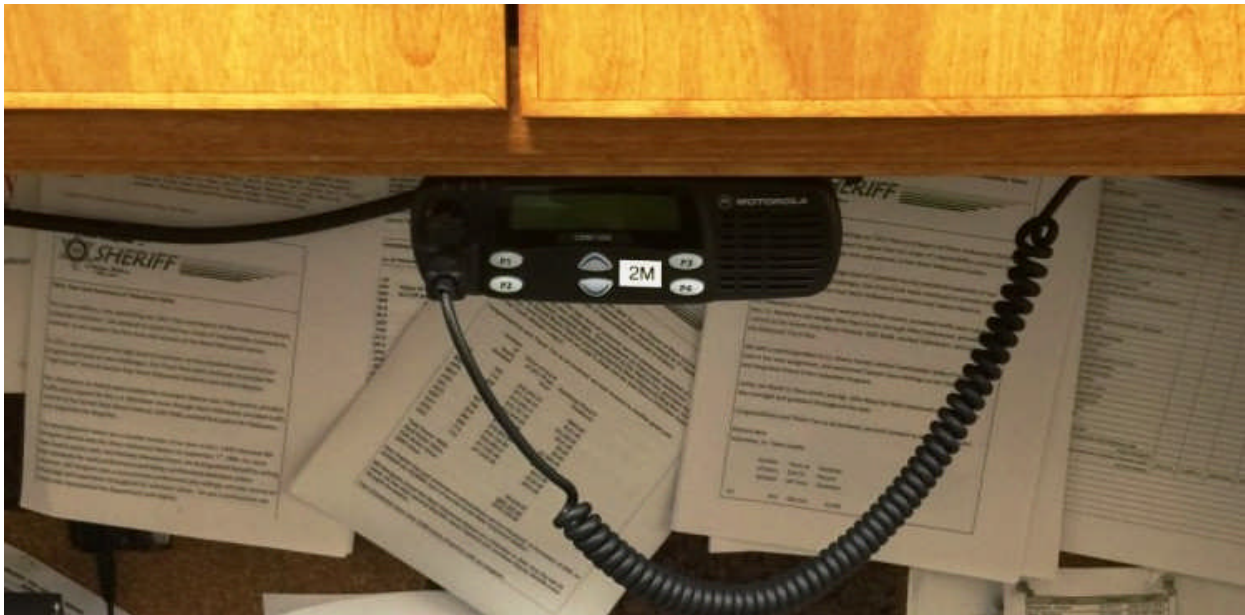
SWR @ 225MHz. "Memory" button does not write the VFO contents into memory, so operation from the VFO is all that is possible.

Resolution:

Attempt to fix the memory button switch. If that is not possible, replace the radio with a single band 220 MHz radio from stock. However if the Memory button can be fixed, add a 2 meter antenna and coax. Connecting a 2m antenna would provide the desired frequency agile 2m radio. There appear to be spare coax runs coming into the room that could be rerouted and reused. Inspect the 220 MHz antenna and retune for minimum SWR at the middle of the 222-225 MHz band.

POSITION 2: Motorola CDM1250 2 meter/commercial 64 channel VHF (136-174 MHz)

LASD Inventory: Tag not seen.



Measurement Results:

Radio operates properly; rated 45w high and 25w low power output. Antenna shows 4:1 SWR on WA6ZTR input @ 147.870 MHz. Intermittent complete loss of power output with right angle BNC adapter in line. We noted that the coax braid was not soldered to connector shell. Numerous outdated / misleading frequencies are programmed in the radio.

Resolution:

Check antenna and coax performance. Repair or replace as necessary. Tune the antenna to the middle of the 2m band (146 MHz). Solder PL259 shell to coax braid. Load "standard" DCS code plug for CDM1250 when available.

POSITION 3: Icom IC-726 HF Radio intended for 10 meter operation
LASD Inventory: 550559



Measurement Results:

Radio power output on 10m meets spec. Antenna SWR is 10:1 on 10 meters. There is a tuner cable connected for the outboard tuner but that function does not work. We could not see whether there was an external tuner at the antenna feed point on the tower. Antenna had lowest SWR around 37 MHz, so it appears to be a commercial VHF low band ground plane not cut properly. If the antenna is a commercial VHF low band ground plane, it may not be possible to extend its length enough to achieve an acceptable SWR at 29.50 MHz.

Resolution:

Check antenna and coax performance. If there is an external tuner on the tower such that the radio is intended to operate on all HF bands it is not working. Repair or replace as necessary.

The simplest approach is to replace the IC-726 with a Yaesu FT-8900 from stock and the appropriate antenna array for 10 and 6 meter operation.

POSITION 4: Icom IC-726HF radio, intended for 6 meter operation
LASD Inventory: 550553



Measurement Results: On 6 meters the radio experienced 20dB over 9 noise level; power output was 10w however full power functions normally on 10M. Coax #5 is connected to a good 6 meter antenna; SWR @ 51.50 MHz 1.5:1. There is a tuner cable connected for the outboard tuner but that function does not work.

Resolution: Replace the IC-726 with a Yaesu FT-8900 and appropriate antenna array for 10 and 6 meter operation.

POSITION 5: Kenwood TM-741, 2M / 440Mhz
LASD Inventory: 1267



Measurement Results: The Kenwood TM741 has two RF slices, one for 2m and one for 440 MHz with an option for a third band. The radio does not power up and was

probably connected to the reported power supply that burned up. We connected the radio to the operating power supply and it still did not power up. Position 5's coax (Coax #6) would appear to be connected to a tri-band 2m/440/1.2GHz antenna since there was such a duplexer attached. The 1.2 GHz radio has subsequently been removed but the 2m and 440 ports were connected to the TM741. The antenna SWR was 5.3:1 @ 144 and 1.3:1 @ 446 MHz.

Resolution:

Replace with Yaesu FT-8900 and antenna complement to achieve a 4 band capability on 2m/440/6m and 10m. Consider reusing the antenna on Coax #6 as a dual band antenna for 2m and 440 (if it can be repaired) and add the dual band 6m /10m antenna and duplexer to finish the antenna complement.

Consider reusing the internal TM 741 440 MHz slice by installing it in Position 1's TM-641A. The TM741 front panel could also be used with the TM 641 to solve the Memory button problem making it a functioning tri-band 2m/220/440mhz radio. If that were to be done add a dual band antenna to Position 1 instead of the 2m single band antenna. If ISD is not interested in this project, the Technical Team could perform the operation since it is described in the users manual.

Power Supplies:

There is one Astron RS-20A for position 1 and position 2. An additional power supply that burned up was not seen but was thought to be in the locked cabinet above position 5 and might be the cause of the TM741 failure. The proper complement of power supplies should be detailed in the Repair Request for the radios recommended.