

DCA-08-MR-009
Metrolink – UP Collision
Chatsworth, CA
September 12, 2008

ATTACHMENT 17

Radio Tests



Wireless Solutions
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September 24, 2008

**Metrolink
Signals & Communications**

Attn: Howard Cox

**RE: Job Number 900124
Radio Operational Testing – Metrolink’s Chatsworth Incident 09-12-08**

Mr. Cox,

Upon receipt of the Motorola Portable Radio HT 1000, Serial Number 402TAJ0289 Z, one of our Bench Technicians, William Chandler, under my immediate supervision, conducted two complete evaluations of the unit. His findings are provided in an attached Spread Sheet on a per Channel Basis.

Subsequently, due to the nature of the request for evaluation of this Radio, I conducted an additional independent complete test of the unit to confirm his findings. My results mirror William Chandlers.

Test 1:

This unit was tested initially using a variable power supply set for 7.5 VDC. The Service Monitor used to conduct the Test is a Model IFR COM-120B.

Test 2:

This second test used the Battery provided and attached to the Radio after being fully charged overnight using the Battery Charger provided. The Service Monitor used to conduct the Test is a Model IFR COM-120B.

The results of both tests indicate that the Radio itself is working properly with minor deviations from specifications in Frequency Error. The Frequency Error, in our opinion, would not have caused a communications failure.

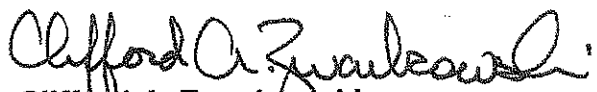
The results of the second test indicate that the Battery, after being fully charged initially for testing, as well as being fully Charged a second time prior to my personal testing, does not provide adequate capacity to fully operate the Radio. The Battery loses capacity over a short, (minutes), period and reduces the Radio Transmit Power dramatically. Further, within three to five Push To Talk Transmissions into our Service

Monitor, it was noted that the Low Battery audible warning indicator was active at the end of each subsequent Push To Talk.

Our conclusion, if requested, would be that, although the Motorola Radio itself is fully functional, lack of Battery capacity could have been a cause of interrupted communications service from this Radio, (once removed from the Charger, and Transmitted from), in a short period of time.

Please feel free to contact me with any questions you may have, or if you require any additional information.

Respectfully submitted,


Clifford A. Zwarkowski
General Manager



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METROLINK JOB NUMBER 900124
MOTOROLA HT 1000 S/N: 402TAJ0289 Z

CHANNEL NUMBER	TRANSMIT FREQUENCY	FREQUENCY ERROR	DEVIATION	TRANSMIT POWER	CTCSS/DCS	RECEIVE FREQUENCY	RECEIVE SENSITIVITY
1	161.415	-0.441	4.64K	4.79W	CS	161.415	-121.6
2	160.815	-0.443	4.61K	4.80W	CS	160.815	-121.7
3	160.545	-0.439	4.61K	4.74W	CS	160.545	-121.7
4	160.560	-0.449	4.71K	4.74W	CS	160.560	-121.6
5	160.485	-0.451	4.68K	4.76W	CS	160.995	-121.3
6	161.385	-0.428	4.52K	4.76W	411/226	160.500	-124.0
7	160.515	-0.463	4.60K	4.74W	CS	160.515	-121.5
8	160.650	-0.459	4.64K	4.74W	CS	160.650	-121.5
9	161.550	-0.447	4.64K	4.73W	CS	161.550	-121.4
10	161.190	-0.451	4.64K	4.77W	CS	161.190	-121.5
11	161.325	-0.452	4.67K	4.79W	CS	161.325	-121.2
12	161.355	-0.447	4.62K	4.74W	CS	161.355	-120.9
13	161.295	-0.458	4.63K	4.74W	CS	161.295	-121.3
14	161.445	-0.452	4.63K	4.74W	CS	161.445	-121.2
15	160.905	-0.461	4.62K	4.77W	CS	160.905	-121.2
16	N/A	N/A	N/A	N/A	CS	165.400	-121.2

Ground Test

September 17th, 2008

East of CP Topanga

West of CP Topanga to Tunnel

200ft. east of signal at CP Topanga-ok

650ft.-ok

150ft.-ok

East Signal-ok

100ft.-ok

550ft.-ok

50ft.-ok

500ft.-ok

West Signal-ok

450ft.-ok

50ft. west of signal at CP Topanga-ok

400ft.-ok

100ft.-ok

350ft.-ok

150ft.-ok

300ft.-ok

200ft.-ok

250ft.-ok

CP Topanga-ok

200ft.-ok

150ft.-ok

100ft.-no (Hear office only, not handheld)

50ft.-no (Hear office only, not handheld)

Tunnel-no (Hear office only, not handheld)

On Wednesday, September 17, 2008 Willie Carter and Jerone Hurst conducted radio tests with Motorola HT-1250 handheld radios. There were three tests made, the first was on eastbound train # 114 from the engine of the train to the last cab car. It was a time based test conducted roughly every 2 minutes as the train travelled from Simi Valley Station to the Northridge Station. The second test was from westbound train # 109, again from the engine to the last cab car and time based between the same stations. The office confirmed the radio tests but they could only hear the handheld east of tunnel #26 although the office could be heard by both handhelds. The final test was done on the ground east and west of CP Topanga until we reached the tunnel. The ground test was distance based and it was between the handheld radio and the office using the Oat Mountain VHF radio.

Radio Test

September 17th, 2008

<u>Train #114 Simi Valley to Northridge Valley</u>	<u>Train #109 Northridge to Simi Valley</u>
11:22am-ok	1:49pm-ok
11:24am-ok	1:51pm-ok
11:26am-ok	1:53pm-ok
11:28am-no (tunnel)	1:55pm-ok
11:30am-ok	1:57pm-ok
11:31am-ok (short tunnel)	1:59pm-no (tunnel)
11:32am-ok	2:00pm-ok
11:33am-ok	2:01pm-ok
11:34am-ok	2:03pm-no (tunnel)
11:36am-ok	2:03pm-ok (out of tunnel)
11:38am-ok	2:04pm-ok
11:39am-ok	2:06pm-ok
11:40am-ok	

(note the failed tunnel tests were between the two handheld radios although the engine radio did receive the radio transmission from the handheld in the last cab car)