TABLE 5-45. Philips WSD Prototype Results at Test Site 7.

CH	Signal Type (Database)	Within Service Contour? (Y/N)	Viewable? (Y/N)	Signal Type (Measured)	Measured Power Level (dBm)	Occupied (O) & Available (A) Channels Reported by WSD			
						L1/ S1	L1/ S2	L2/ S1	L2/ S2
21	ATSC	N	N	ATSC	-92.9	O	O	O	A
22	NTSC	N	Y	NTSC	-69.0	O	O	O	O
23	NTSC	N	Y	NTSC	-89.2	O	O	O	O
24	NTSC	N	Y	NTSC	-88.5	O	O	O	O
25	NTSC	Y	Y	NTSC	-80.1	O	O	O	O
26	NTSC	N	Y	NTSC	-81.1	O	O	O	O
27	ATSC	N	Y	ATSC	-81.5	O	O	O	O
28	ATSC	Y	N	ATSC	-88.2	O	O	O	O
29	ATSC	Y	N	ATSC	-92.9	O	O	O	A
30	ATSC	N	Y	ATSC	-75.7	O	O	O	O
	ATSC	N							
31	NTSC	Y	Y	NTSC	-81.3	O	O	O	O
32	NTSC	N	N	NTSC	-96.5	O	O	O	O
33	ATSC	N	Y	ATSC	-79.6	O	O	O	O
34	ATSC	Y	Y	ATSC	-72.0	O	O	O	O
35	ATSC	Y	Y	ATSC	-73.1	O	O	O	O
36	ATSC	Y	Y	ATSC	-74.3	O	O	O	O
38	ATSC	Y	Y	ATSC	-84.3	O	O	O	O
39	ATSC	Y	Y	ATSC	-76.3	O	O	O	O
40	ATSC	Y	N	ATSC	-87.3	O	O	O	O
41	ATSC	Y	N	ATSC	-93.8	O	O	O	O
42	ATSC	N	N	ATSC	-89.0	O	O	O	O
	NTSC	N							
43	ATSC	N	Y	NTSC	-89.9	O	O	O	O
44	ATSC	Y	N	ATSC	-93.3	O	O	O	O
45	NTSC	N	Y	NTSC	-87.7	O	O	O	O
46	ATSC	Y	N	ATSC	-87.4	O	O	A	O
47	NTSC	N	Y	ATSC	-78.4	O	O	O	O
48	ATSC	Y	Y	ATSC	-85.5	O	O	O	O
49	NTSC	N	Y	NTSC	-84.5	O	O	O	O
50	NTSC	N	Y	NTSC	-82.6	O	O	O	O
51	ATSC	N	N	ATSC	-87.6	O	O	O	O

TABLE 5-46. Philips WSD Prototype Results at Test Site 7 (w/ 10-dB attenuator).

CH	Signal Type (Database)	Within Service Contour? (Y/N)	Viewable? (Y/N)	Signal Type (Measured)	Measured Power Level (dBm)	Occupied (O) & Available (A) Channels Reported by WSD (Loc 2)
21	ATSC	N	N	ATSC	-92.9	A
22	NTSC	N	Y	NTSC	-69.0	O
23	NTSC	N	Y	NTSC	-89.2	O
24	NTSC	N	Y	NTSC	-88.5	O
25	NTSC	Y	Y	NTSC	-80.1	O
26	NTSC	N	Y	NTSC	-81.1	O
27	ATSC	N	Y	ATSC	-81.5	O
28	ATSC	Y	N	ATSC	-88.2	O
29	ATSC	Y	N	ATSC	-92.9	A
30	ATSC	N	Y	ATSC	-75.7	O
	ATSC	N				
31	NTSC	Y	Y	NTSC	-81.3	O
32	NTSC	N	N	NTSC	-96.5	O
33	ATSC	N	Y	ATSC	-79.6	A
34	ATSC	Y	Y	ATSC	-72.0	O
35	ATSC	Y	Y	ATSC	-73.1	O
36	ATSC	Y	Y	ATSC	-74.3	O
38	ATSC	Y	Y	ATSC	-84.3	O
39	ATSC	Y	Y	ATSC	-76.3	O
40	ATSC	Y	N	ATSC	-87.3	A
41	ATSC	Y	N	ATSC	-93.8	A
42	ATSC	N	N	ATSC	-89.0	O
	NTSC	N				
43	ATSC	N	Y	NTSC	-89.9	O
44	ATSC	Y	N	ATSC	-93.3	O
45	NTSC	N	Y	NTSC	-87.7	O
46	ATSC	Y	N	ATSC	-87.4	A
47	NTSC	N	Y	ATSC	-78.4	A
48	ATSC	Y	Y	ATSC	-85.5	O
49	NTSC	N	Y	NTSC	-84.5	O
50	NTSC	N	Y	NTSC	-82.6	O
51	ATSC	N	N	ATSC	-87.6	O

5.8 Test Site #8 – Intersection of Rt. 17 and Middle Point Rd., NE of Myersville

This site is northeast of Myersville, in rural western Maryland. This was one of four sites recommended for measurement by MSTV.[36] Channel occupancy measurements were performed at the entrance of a long paved driveway leading to a horse barn and the WSD prototype field trials were performed at two locations in a field adjacent to the driveway, separated by approximately 91.4 meters (300 feet).

[36] *Ibid.*

TABLE 5-47. Licensed TV Station Assignments within 100-km radius of Test Site 8.

CH	Station Call Sign	Station Location	Signal Type	Separation Distance (km)	Within Service Contour? (Y/N)	Viewable? (Y/N)
21	WVPY	Front Royal, VA	ATSC	96.57	N	N
22	-	-	-	-	N	N
23	WDDN-LP	Washington, DC	NTSC	74.42	N	N
24	WUTB	Baltimore, MD	NTSC	72.59	N	Y
25	WHAG	Hagerstown, MD	NTSC	39.35	Y	Y
26	WETA	Washington, DC	NTSC	75.79	N	Y
27	WETA	Washington, DC	ATSC	78.15	N	N
	WHTM	Harrisburg, PA	NTSC	96.92	N	
28	WFPT	Frederick, MD	ATSC	38.30	Y	N
29	WMPB	Baltimore, MD	ATSC	65.35	Y	N
30	WGCB	Red Lion, PA	ATSC	89.20	N	Y
31	WWPB	Hagerstown, MD	NTSC	39.52	Y	N
32	WHUT	Washington, DC	NTSC	75.80	N	N
33	WHUT	Washington, DC	ATSC	78.15	N	N
34	WUSA	Washington, DC	ATSC	78.15	Y	N
35	WDCA	Washington, DC	ATSC	77.44	Y	N
36	WTTG	Washington, DC	ATSC	77.44	Y	N
38	WJZ	Baltimore, MD	ATSC	79.40	Y	N
39	WJLA	Washington, DC	ATSC	78.15	Y	N
40	WNUV	Baltimore, MD	ATSC	79.44	Y	N
41	WUTB	Baltimore, MD	ATSC	72.59	Y	N
42	WVPY	Front Royal, VA	NTSC	96.57	N	Y
43	WPXW	Manassas, VA	ATSC	87.72	N	Y
	WPMT	York, PA	NTSC	94.55	N	
44	WWPB	Hagerstown, MD	ATSC	39.52	Y	N
45	WBFF	Baltimore, MD	NTSC	79.44	N	N
46	WBFF	Baltimore, MD	ATSC	79.44	Y	N
47	WPMT	York, PA	ATSC	94.55	N	N
48	WRC	Washington, DC	ATSC	79.06	Y	N
49	WGCB	Red Lion, PA	NTSC	89.20	N	N
50	WDCW	Washington, DC	NTSC	79.38	N	Y
51	WDCW	Washington, DC	ATSC	79.38	N	N

TABLE 5-48. Adaptrum WSD Prototype Results at Test Site 8.

CH	Signal Type (Database)	Within Service Contour? (Y/N)	Viewable? (Y/N)	Signal Type (Measured)	Measured Power Level (dBm)	Occupied (O) & Available (A) Channels Reported by WSD			
						L1/ S1	L1/ S2[1]	L2/ S1	L2/ S2[1]
21	ATSC	N	N	ATSC	-93.4	O	-	O	-
22	-	N	N	NTSC	-90.4	O	A	A	A
23	NTSC	N	N	ATSC	-92.8	A	-	A	-
24	NTSC	N	Y	NTSC	-94.4	A	A	A	A
25	NTSC	Y	Y	NTSC	-77.7	O	O	O	O
26	NTSC	N	Y	NTSC	-93.4	A	A	A	A
27	ATSC	N	N	ATSC	-95.8	A	-	A	-
	NTSC	N							
28	ATSC	Y	N	ATSC	-96.2	A	-	A	-
29	ATSC	Y	N	NTSC	-90.8	A	A	A	A
30	ATSC	N	Y	ATSC	-72.7	O	-	O	-
31	NTSC	Y	N	NTSC	-75.6	O	O	O	O
32	NTSC	N	N	ATSC	-88.7	O	O	A	O
33	ATSC	N	N	ATSC	-93.1	A	-	A	-
34	ATSC	Y	N	ATSC	-91.2	O	-	O	-
35	ATSC	Y	N	ATSC	-91.7	A	-	A	-
36	ATSC	Y	N	ATSC	-93.2	O	-	O	-
38	ATSC	Y	N	ATSC	-93.8	O	-	A	-
39	ATSC	Y	N	ATSC	-92.3	O	-	A	-
40	ATSC	Y	N	ATSC	-93.2	A	-	A	-
41	ATSC	Y	N	ATSC	-95.0	O	-	A	-
42	NTSC	N	Y	NTSC	-96.1	A	A	O	O
43	ATSC	N	Y	NTSC	-102.3	A	A	A	A
	NTSC	N							
44	ATSC	Y	N	ATSC	-90.1	O	-	O	-
45	NTSC	N	N	NTSC	-100.5	A	A	A	A
46	ATSC	Y	N	ATSC	-94.6	O	-	A	-
47	ATSC	N	N	-	-	A	-	A	-
48	ATSC	Y	N	ATSC	-93.2	O	O	A	-
49	NTSC	N	N	ATSC	-94.6	O	-	A	-
50	NTSC	N	Y	NTSC	-95.7	O	A	A	A
51	ATSC	N	N	ATSC	-96.7	O	-	O	-

[1] Second scan for NTSC signals only.

TABLE 5-49. I2R WSD Prototype Results at Test Site 8.

CH	Signal Type (Database)	Within Service Contour? (Y/N)	Viewable? (Y/N)	Signal Type (Measured)	Measured Power Level (dBm)	Occupied (O) & Available (A) Channels Reported by WSD			
						L1/ S1	L1/ S2	L2/ S1	L2/ S2
21	ATSC	N	N	ATSC	-93.4	A	O	O	O
22	-	N	N	NTSC	-90.4	A	A	A	A
23	NTSC	N	N	ATSC	-92.8	A	A	O	O
24	NTSC	N	Y	NTSC	-94.4	A	A	A	A
25	NTSC	Y	Y	NTSC	-77.7	A	A	A	A
26	NTSC	N	Y	NTSC	-93.4	A	A	A	A
27	ATSC	N	N	ATSC	-95.8	O	O	A	A
	NTSC	N							
28	ATSC	Y	N	ATSC	-96.2	A	A	A	A
29	ATSC	Y	N	NTSC	-90.8	A	A	A	O
30	ATSC	N	Y	ATSC	-72.7	O	O	O	O
31	NTSC	Y	N	NTSC	-75.6	A	A	A	A
32	NTSC	N	N	ATSC	-88.7	A	A	A	A
33	ATSC	N	N	ATSC	-93.1	A	A	A	A
34	ATSC	Y	N	ATSC	-91.2	A	A	O	A
35	ATSC	Y	N	ATSC	-91.7	A	A	O	O
36	ATSC	Y	N	ATSC	-93.2	A	A	O	O
38	ATSC	Y	N	ATSC	-93.8	A	A	A	O
39	ATSC	Y	N	ATSC	-92.3	O	O	A	A
40	ATSC	Y	N	ATSC	-93.2	O	O	A	A
41	ATSC	Y	N	ATSC	-95.0	O	O	A	A
42	NTSC	N	Y	NTSC	-96.1	O	O	A	A
43	ATSC	N	Y	NTSC	-102.3	A	A	A	O
	NTSC	N							
44	ATSC	Y	N	ATSC	-90.1	A	A	O	O
45	NTSC	N	N	NTSC	-100.5	A	A	A	A
46	ATSC	Y	N	ATSC	-94.6	O	O	A	A
47	ATSC	N	N	-	-	A	A	A	A
48	ATSC	Y	N	ATSC	-93.2	A	A	O	O
49	NTSC	N	N	ATSC	-94.6	A	A	A	A
50	NTSC	N	Y	NTSC	-95.7	A	A	A	A
51	ATSC	N	N	ATSC	-96.7	A	A	A	A

TABLE 5-50. Motorola WSD Prototype (Test Mode) Results at Test Site 8.

CH	Signal Type (Database)	Within Service Contour? (Y/N)	Viewable? (Y/N)	Signal Type (Measured)	Measured Power Level (dBm)	Occupied (O) & Available (A) Channels Reported by WSD			
						L1/ S1	L1/ S2	L2/ S1	L2/ S2
21	ATSC	N	N	ATSC	-93.4	O	O	O	O
22	-	N	N	NTSC	-90.4	-	O	-	-
23	NTSC	N	N	ATSC	-92.8	A	A	A	A
24	NTSC	N	Y	NTSC	-94.4	-	-	-	-
25	NTSC	Y	Y	NTSC	-77.7	-	-	-	-
26	NTSC	N	Y	NTSC	-93.4	O	-	-	-
27	ATSC	N	N	ATSC	-95.8	A	A	A	A
	NTSC	N							
28	ATSC	Y	N	ATSC	-96.2	O	A	A	A
29	ATSC	Y	N	NTSC	-90.8	-	-	-	-
30	ATSC	N	Y	ATSC	-72.7	O	O	A	O
31	NTSC	Y	N	NTSC	-75.6	-	-	-	-
32	NTSC	N	N	ATSC	-88.7	A	A	A	A
33	ATSC	N	N	ATSC	-93.1	A	A	A	A
34	ATSC	Y	N	ATSC	-91.2	O	A	O	O
35	ATSC	Y	N	ATSC	-91.7	O	O	A	O
36	ATSC	Y	N	ATSC	-93.2	A	A	A	A
38	ATSC	Y	N	ATSC	-93.8	O	O	O	A
39	ATSC	Y	N	ATSC	-92.3	O	O	A	A
40	ATSC	Y	N	ATSC	-93.2	O	O	A	A
41	ATSC	Y	N	ATSC	-95.0	O	A	A	A
42	NTSC	N	Y	NTSC	-96.1	O	O	-	-
43	ATSC	N	Y	NTSC	-102.3	O	O	O	O
	NTSC	N							
44	ATSC	Y	N	ATSC	-90.1	A	O	O	A
45	NTSC	N	N	NTSC	-100.5	-	-	-	-
46	ATSC	Y	N	ATSC	-94.6	O	O	O	A
47	ATSC	N	N	-	-	-	-	-	-
48	ATSC	Y	N	ATSC	-93.2	A	O	O	O
49	NTSC	N	N	ATSC	-94.6	A	O	O	A
50	NTSC	N	Y	NTSC	-95.7	-	-	-	-
51	ATSC	N	N	ATSC	-96.7	A	A	O	A

NOTE: In the test mode this device detects only ATSC signals (*i.e.*, no NTSC detection capability).

TABLE 5-51. Motorola WSD Prototype (Normal Mode) Results at Test Site 8.

CH	Signal Type (Database)	Within Service Contour? (Y/N)	Viewable? (Y/N)	Signal Type (Measured)	Measured Power Level (dBm)	Occupied (O) & Available (A) Channels Reported by WSD	
						L1/ S1	L2/ S1
21	ATSC	N	N	ATSC	-93.4	A	A
22	-	N	N	NTSC	-90.4	A	A
23	NTSC	N	N	ATSC	-92.8	A	A
24	NTSC	N	Y	NTSC	-94.4	A	A
25	NTSC	Y	Y	NTSC	-77.7	O	O
26	NTSC	N	Y	NTSC	-93.4	A	A
27	ATSC	N	N	ATSC	-95.8	A	A
	NTSC	N					
28	ATSC	Y	N	ATSC	-96.2	O	O
29	ATSC	Y	N	NTSC	-90.8	O	O
30	ATSC	N	Y	ATSC	-72.7	A	A
31	NTSC	Y	N	NTSC	-75.6	O	O
32	NTSC	N	N	ATSC	-88.7	A	A
33	ATSC	N	N	ATSC	-93.1	A	A
34	ATSC	Y	N	ATSC	-91.2	O	O
35	ATSC	Y	N	ATSC	-91.7	O	O
36	ATSC	Y	N	ATSC	-93.2	O	O
38	ATSC	Y	N	ATSC	-93.8	O	O
39	ATSC	Y	N	ATSC	-92.3	O	O
40	ATSC	Y	N	ATSC	-93.2	O	O
41	ATSC	Y	N	ATSC	-95.0	O	O
42	NTSC	N	Y	NTSC	-96.1	A	A
43	ATSC	N	Y	NTSC	-102.3	A	A
	NTSC	N					
44	ATSC	Y	N	ATSC	-90.1	O	O
45	NTSC	N	N	NTSC	-100.5	O	O
46	ATSC	Y	N	ATSC	-94.6	O	O
47	ATSC	N	N	-	-	O	O
48	ATSC	Y	N	ATSC	-93.2	O	O
49	NTSC	N	N	ATSC	-94.6	A	A
50	NTSC	N	Y	NTSC	-95.7	A	A
51	ATSC	N	N	ATSC	-96.7	O	O

TABLE 5-52. Philips WSD Prototype Results at Test Site 8.

CH	Signal Type (Database)	Within Service Contour? (Y/N)	Viewable? (Y/N)	Signal Type (Measured)	Measured Power Level (dBm)	Occupied (O) & Available (A) Channels Reported by WSD			
						L1/ S1	L1/ S2	L2/ S1	L2/ S2
21	ATSC	N	N	ATSC	-93.4	O	O	O	O
22	-	N	N	NTSC	-90.4	O	O	O	O
23	NTSC	N	N	ATSC	-92.8	O	O	O	O
24	NTSC	N	Y	NTSC	-94.4	O	O	O	O
25	NTSC	Y	Y	NTSC	-77.7	O	O	O	O
26	NTSC	N	Y	NTSC	-93.4	O	O	O	O
27	ATSC NTSC	N N	N	ATSC	-95.8	O	O	O	O
28	ATSC	Y	N	ATSC	-96.2	O	O	O	O
29	ATSC	Y	N	NTSC	-90.8	O	O	O	O
30	ATSC	N	Y	ATSC	-72.7	O	O	O	O
31	NTSC	Y	N	NTSC	-75.6	O	O	O	O
32	NTSC	N	N	ATSC	-88.7	O	O	O	O
33	ATSC	N	N	ATSC	-93.1	O	O	O	O
34	ATSC	Y	N	ATSC	-91.2	O	O	O	O
35	ATSC	Y	N	ATSC	-91.7	O	O	O	O
36	ATSC	Y	N	ATSC	-93.2	O	O	O	O
38	ATSC	Y	N	ATSC	-93.8	O	O	O	O
39	ATSC	Y	N	ATSC	-92.3	O	O	O	O
40	ATSC	Y	N	ATSC	-93.2	O	O	O	O
41	ATSC	Y	N	ATSC	-95.0	O	O	O	O
42	NTSC	N	Y	NTSC	-96.1	O	O	O	O
43	ATSC NTSC	N N	Y	NTSC	-102.3	O	O	O	O
44	ATSC	Y	N	ATSC	-90.1	O	O	O	O
45	NTSC	N	N	NTSC	-100.5	O	O	O	O
46	ATSC	Y	N	ATSC	-94.6	O	O	A	O
47	ATSC	N	N	-	-	A	O	A	A
48	ATSC	Y	N	ATSC	-93.2	O	O	O	O
49	NTSC	N	N	ATSC	-94.6	O	O	O	O
50	NTSC	N	Y	NTSC	-95.7	O	O	O	O
51	ATSC	N	N	ATSC	-96.7	O	O	O	O

TABLE 5-53. Philips WSD Prototype Results at Test Site 8 (w/ 10-dB attenuator).

CH	Signal Type (Database)	Within Service Contour? (Y/N)	Viewable? (Y/N)	Signal Type (Measured)	Measured Power Level (dBm)	Occupied (O) & Available (A) Channels Reported by WSD (Loc 1)
21	ATSC	N	N	ATSC	-93.4	O
22	-	N	N	NTSC	-90.4	O
23	NTSC	N	N	ATSC	-92.8	A
24	NTSC	N	Y	NTSC	-94.4	O
25	NTSC	Y	Y	NTSC	-77.7	O
26	NTSC	N	Y	NTSC	-93.4	O
27	ATSC	N	N	ATSC	-95.8	A
	NTSC	N				
28	ATSC	Y	N	ATSC	-96.2	O
29	ATSC	Y	N	NTSC	-90.8	O
30	ATSC	N	Y	ATSC	-72.7	A
31	NTSC	Y	N	NTSC	-75.6	O
32	NTSC	N	N	ATSC	-88.7	O
33	ATSC	N	N	ATSC	-93.1	O
34	ATSC	Y	N	ATSC	-91.2	O
35	ATSC	Y	N	ATSC	-91.7	O
36	ATSC	Y	N	ATSC	-93.2	O
38	ATSC	Y	N	ATSC	-93.8	O
39	ATSC	Y	N	ATSC	-92.3	O
40	ATSC	Y	N	ATSC	-93.2	O
41	ATSC	Y	N	ATSC	-95.0	A
42	NTSC	N	Y	NTSC	-96.1	O
43	ATSC	N	Y	NTSC	-102.3	O
	NTSC	N				
44	ATSC	Y	N	ATSC	-90.1	O
45	NTSC	N	N	NTSC	-100.5	O
46	ATSC	Y	N	ATSC	-94.6	O
47	ATSC	N	N	-	-	A
48	ATSC	Y	N	ATSC	-93.2	O
49	NTSC	N	N	ATSC	-94.6	O
50	NTSC	N	Y	NTSC	-95.7	O
51	ATSC	N	N	ATSC	-96.7	A

5.9 Test Site #9 – Grossnickle Church at Rt 17 and Meeting House Road

This site is northeast of Myersville, in rural western Maryland. This was one of four sites recommended for measurement by MSTV.[37] Channel occupancy measurements were performed in the parking lot of the Church Parish Hall and the WSD prototype field trials were performed at two locations in the parking lot, separated by approximately 30.5 meters (100 feet).

[37] *Ibid.*

TABLE 5-54. Licensed TV Station Assignments within 100-km radius of Test Site 9.

CH	Station Call Sign	Station Location	Signal Type	Separation Distance (km)	Within Service Contour? (Y/N)	Viewable? (Y/N)
21	WVPY	Front Royal, VA	ATSC	94.78	N	N
22	WMPT	Annapolis, MD	NTSC	99.05	N	Y
23	WDDN-LP	Washington, DC	NTSC	72.80	N	N
24	WUTB	Baltimore, MD	NTSC	72.05	N	N
25	WHAG	Hagerstown, MD	NTSC	39.65	Y	Y
26	WETA	Washington, DC	NTSC	74.06	N	Y
27	WETA	Washington, DC	ATSC	76.44	N	N
	WHTM	Harrisburg, PA	NTSC	99.02	N	N
28	WFPT	Frederick, MD	ATSC	36.58	Y	N
29	WMPB	Baltimore, MD	ATSC	65.34	Y	N
30	WGCB	Red Lion, PA	ATSC	90.51	N	N
31	WWPB	Hagerstown, MD	NTSC	39.76	Y	Y
32	WHUT	Washington, DC	NTSC	74.06	N	Y
33	WHUT	Washington, DC	ATSC	76.44	N	N
34	WUSA	Washington, DC	ATSC	76.44	Y	N
35	WDCA	Washington, DC	ATSC	75.73	Y	N
36	WTTG	Washington, DC	ATSC	75.73	Y	N
38	WJZ	Baltimore, MD	ATSC	79.10	Y	N
39	WJLA	Washington, DC	ATSC	76.44	Y	N
40	WNUV	Baltimore, MD	ATSC	79.15	Y	N
41	WUTB	Baltimore, MD	ATSC	72.05	Y	N
42	WVPY	Front Royal, VA	NTSC	94.78	N	Y
	WMPT	Annapolis, MD	ATSC	99.05	N	N
43	WPXW	Manassas, VA	ATSC	85.64	N	N
	WPMT	York, PA	NTSC	96.09	N	Y
44	WWPB	Hagerstown, MD	ATSC	39.76	Y	N
45	WBFF	Baltimore, MD	NTSC	79.15	N	Y
46	WBFF	Baltimore, MD	ATSC	79.15	Y	N
47	WPMT	York, PA	ATSC	96.09	N	N
48	WRC	Washington, DC	ATSC	77.34	Y	N
49	WGCB	Red Lion, PA	NTSC	90.51	N	N
50	WDCW	Washington, DC	NTSC	77.76	N	Y
51	WDCW	Washington, DC	ATSC	77.76	N	N

TABLE 5-55. Adaptrum WSD Prototype Results at Test Site 9.

CH	Signal Type (Database)	Within Service Contour? (Y/N)	Viewable? (Y/N)	Measured Signal Type	Measured Power Level (dBm)	Occupied (O) & Available (A) Channels Reported by WSD	
						L2/ S1	L2/ S2 [1]
21	ATSC	N	N	ATSC	-90.6	O	-
22	NTSC	N	Y	NTSC	-92.9	O	A
23	NTSC	N	N	ATSC	-95.2	A	-
24	NTSC	N	N	NTSC	-108.0	A	A
25	NTSC	Y	Y	NTSC	-94.5	O	A
26	NTSC	N	Y	NTSC	-96.8	A	O
27	ATSC	N	N	NTSC	-105.6	A	A
	NTSC	N	N				
28	ATSC	Y	N	NTSC	-114.9	A	A
29	ATSC	Y	N	-	-	A	-
30	ATSC	N	N	ATSC	-88.8	A	-
31	NTSC	Y	Y	NTSC	-91.7	O	A
32	NTSC	N	Y	NTSC	-97.0	A	A
33	ATSC	N	N	NTSC	-100.5	A	A
34	ATSC	Y	N	ATSC	-92.5	O	-
35	ATSC	Y	N	ATSC	-93.7	A	-
36	ATSC	Y	N	ATSC	-91.4	O	-
38	ATSC	Y	N	ATSC	-93.5	O	-
39	ATSC	Y	N	ATSC	-92.7	A	-
40	ATSC	Y	N	ATSC	-94.7	A	-
41	ATSC	Y	N	-	-	O	-
42	NTSC	N	Y	NTSC	-100.5	O	O
	ATSC	N	N				
43	ATSC	N	N	NTSC	-85.6	A	A
	NTSC	N	Y				
44	ATSC	Y	N	ATSC	-96.3	A	-
45	NTSC	N	Y	NTSC	-93.4	A	A
46	ATSC	Y	N	ATSC	-96.5	O	-
47	ATSC	N	N	ATSC	-93.1	A	-
48	ATSC	Y	N	NTSC	-105.4	A	A
49	NTSC	N	N	ATSC	-	A	-
50	NTSC	N	Y	NTSC	-95.0	A	A
51	ATSC	N	N	ATSC	-95.9	O	-

[1] Second scan for NTSC channels only.

TABLE 5-56. I2R WSD Prototype Results at Test Site 9.

CH	Signal Type (Database)	Within Service Contour? (Y/N)	Viewable? (Y/N)	Measured Signal Type	Measured Power Level (dBm)	Occupied (O) & Available (A) Channels Reported by WSD			
						L1/ S1	L1/ S2	L2/ S1	L2/ S2
21	ATSC	N	N	ATSC	-90.6	O	O	A	O
22	NTSC	N	Y	NTSC	-92.9	A	A	A	A
23	NTSC	N	N	ATSC	-95.2	A	A	A	A
24	NTSC	N	N	NTSC	-108.0	A	A	A	A
25	NTSC	Y	Y	NTSC	-94.5	A	A	A	A
26	NTSC	N	Y	NTSC	-96.8	A	A	A	A
27	ATSC	N	N	NTSC	-105.6	A	A	A	A
	NTSC	N	N						
28	ATSC	Y	N	NTSC	-114.9	A	A	A	A
29	ATSC	Y	N	-	-	A	A	A	A
30	ATSC	N	N	ATSC	-88.8	O	O	A	A
31	NTSC	Y	Y	NTSC	-91.7	A	A	A	A
32	NTSC	N	Y	NTSC	-97.0	A	A	A	A
33	ATSC	N	N	NTSC	-100.5	A	A	A	A
34	ATSC	Y	N	ATSC	-92.5	A	A	A	A
35	ATSC	Y	N	ATSC	-93.7	A	A	A	A
36	ATSC	Y	N	ATSC	-91.4	A	A	A	A
38	ATSC	Y	N	ATSC	-93.5	O	A	O	O
39	ATSC	Y	N	ATSC	-92.7	A	A	A	A
40	ATSC	Y	N	ATSC	-94.7	A	A	A	A
41	ATSC	Y	N	-	-	A	A	A	A
42	NTSC	N	Y	NTSC	-100.5	A	A	A	A
	ATSC	N	N						
43	ATSC	N	N	NTSC	-85.6	A	A	A	A
	NTSC	N	Y						
44	ATSC	Y	N	ATSC	-96.3	A	A	A	A
45	NTSC	N	Y	NTSC	-93.4	A	A	A	A
46	ATSC	Y	N	ATSC	-96.5	A	A	A	A
47	ATSC	N	N	ATSC	-93.1	A	A	A	A
48	ATSC	Y	N	NTSC	-105.4	A	A	A	A
49	NTSC	N	N	ATSC	-	A	A	A	A
50	NTSC	N	Y	NTSC	-95.0	A	A	A	A
51	ATSC	N	N	ATSC	-95.9	A	A	A	A

TABLE 5-57. Motorola WSD Prototype (Test Mode) Results at Test Site 9.

CH	Signal Type (Database)	Within Service Contour? (Y/N)	Viewable? (Y/N)	Measured Signal Type	Measured Power Level (dBm)	Occupied (O) & Available (A) Channels Reported by WSD			
						L1/ S1	L1/ S2	L2/ S1	L2/ S2
21	ATSC	N	N	ATSC	-90.6	O	O	O	O
22	NTSC	N	Y	NTSC	-92.9	-	-	-	-
23	NTSC	N	N	ATSC	-95.2	A	A	A	A
24	NTSC	N	N	NTSC	-108.0	-	-	-	-
25	NTSC	Y	Y	NTSC	-94.5	-	-	-	-
26	NTSC	N	Y	NTSC	-96.8	-	-	-	-
27	ATSC	N	N	NTSC	-105.6	-	-	-	-
	NTSC	N	N						
28	ATSC	Y	N	NTSC	-114.9	-	-	-	-
29	ATSC	Y	N	-	-	-	-	-	-
30	ATSC	N	N	ATSC	-88.8	O	O	O	O
31	NTSC	Y	Y	NTSC	-91.7	-	-	-	-
32	NTSC	N	Y	NTSC	-97.0	-	-	-	-
33	ATSC	N	N	NTSC	-100.5	-	-	-	-
34	ATSC	Y	N	ATSC	-92.5	A	A	A	A
35	ATSC	Y	N	ATSC	-93.7	A	A	A	A
36	ATSC	Y	N	ATSC	-91.4	A	A	A	A
38	ATSC	Y	N	ATSC	-93.5	A-	A	O	O
39	ATSC	Y	N	ATSC	-92.7	A	A	O	A
40	ATSC	Y	N	ATSC	-94.7	O	O	O	O
41	ATSC	Y	N	-	-	O	O	O	O
42	NTSC	N	Y	NTSC	-100.5	-	-	-	-
	ATSC	N	N						
43	ATSC	N	N	NTSC	-85.6	O	O	O	O
	NTSC	N	Y						
44	ATSC	Y	N	ATSC	-96.3	A	A	A	A
45	NTSC	N	Y	NTSC	-93.4	-	-	-	-
46	ATSC	Y	N	ATSC	-96.5	O	A	O	A
47	ATSC	N	N	ATSC	-93.1	A	A	A	A
48	ATSC	Y	N	NTSC	-105.4	-	-	-	-
49	NTSC	N	N	ATSC	-	A	A	A	A
50	NTSC	N	Y	NTSC	-95.0	-	-	-	-
51	ATSC	N	N	ATSC	-95.9	A	A	O	A

NOTE: In the test mode this device detects only ATSC signals (*i.e.*, no NTSC detection capability).

TABLE 5-58. Motorola WSD Prototype (Normal Mode) Results at Test Site 9.

CH	Signal Type (Database)	Within Service Contour? (Y/N)	Viewable? (Y/N)	Measured Signal Type	Measured Power Level (dBm)	Occupied (O) & Available (A) Channels Reported by WSD	
						L1/ S1	L2/ S1
21	ATSC	N	N	ATSC	-90.6	A	A
22	NTSC	N	Y	NTSC	-92.9	A	A
23	NTSC	N	N	ATSC	-95.2	A	A
24	NTSC	N	N	NTSC	-108.0	A	A
25	NTSC	Y	Y	NTSC	-94.5	O	O
26	NTSC	N	Y	NTSC	-96.8	A	A
27	ATSC	N	N	NTSC	-105.6	A	A
	NTSC	N	N				
28	ATSC	Y	N	NTSC	-114.9	O	O
29	ATSC	Y	N	-	-	O	O
30	ATSC	N	N	ATSC	-88.8	A	A
31	NTSC	Y	Y	NTSC	-91.7	O	O
32	NTSC	N	Y	NTSC	-97.0	A	A
33	ATSC	N	N	NTSC	-100.5	O	O
34	ATSC	Y	N	ATSC	-92.5	O	O
35	ATSC	Y	N	ATSC	-93.7	O	O
36	ATSC	Y	N	ATSC	-91.4	O	O
38	ATSC	Y	N	ATSC	-93.5	O	O
39	ATSC	Y	N	ATSC	-92.7	O	O
40	ATSC	Y	N	ATSC	-94.7	O	O
41	ATSC	Y	N	-	-	O	O
42	NTSC	N	Y	NTSC	-100.5	A	A
	ATSC	N	N				
43	ATSC	N	N	NTSC	-85.6	A	A
	NTSC	N	Y				
44	ATSC	Y	N	ATSC	-96.3	O	O
45	NTSC	N	Y	NTSC	-93.4	O	O
46	ATSC	Y	N	ATSC	-96.5	O	O
47	ATSC	N	N	ATSC	-93.1	O	O
48	ATSC	Y	N	NTSC	-105.4	O	O
49	NTSC	N	N	ATSC	-	A	A
50	NTSC	N	Y	NTSC	-95.0	O	A
51	ATSC	N	N	ATSC	-95.9	O	O

TABLE 5-59. Philips WSD Prototype Results at Test Site 9.

CH	Signal Type (Database)	Within Service Contour? (Y/N)	Viewable? (Y/N)	Measured Signal Type	Measured Power Level (dBm)	Occupied (O) & Available (A) Channels Reported by WSD			
						L1/ S1	L1/ S2	L2/ S1	L2/ S2
21	ATSC	N	N	ATSC	-90.6	O	O	O	O
22	NTSC	N	Y	NTSC	-92.9	O	O	O	O
23	NTSC	N	N	ATSC	-95.2	O	A	O	O
24	NTSC	N	N	NTSC	-108.0	O	O	O	O
25	NTSC	Y	Y	NTSC	-94.5	O	O	O	O
26	NTSC	N	Y	NTSC	-96.8	O	O	O	O
27	ATSC	N	N	NTSC	-105.6	O	O	O	O
	NTSC	N	N						
28	ATSC	Y	N	NTSC	-114.9	O	A	A	O
29	ATSC	Y	N	-	-	O	A	O	O
30	ATSC	N	N	ATSC	-88.8	O	O	O	O
31	NTSC	Y	Y	NTSC	-91.7	O	O	O	O
32	NTSC	N	Y	NTSC	-97.0	O	O	O	O
33	ATSC	N	N	NTSC	-100.5	O	O	O	O
34	ATSC	Y	N	ATSC	-92.5	O	O	O	O
35	ATSC	Y	N	ATSC	-93.7	O	O	O	O
36	ATSC	Y	N	ATSC	-91.4	O	O	O	O
38	ATSC	Y	N	ATSC	-93.5	O	O	O	O
39	ATSC	Y	N	ATSC	-92.7	O	A	O	O
40	ATSC	Y	N	ATSC	-94.7	O	O	O	O
41	ATSC	Y	N	-	-	O	O	O	O
42	NTSC	N	Y	NTSC	-100.5	O	O	O	O
	ATSC	N	N						
43	ATSC	N	N	NTSC	-85.6	O	O	O	O
	NTSC	N	Y						
44	ATSC	Y	N	ATSC	-96.3	O	O	O	O
45	NTSC	N	Y	NTSC	-93.4	O	O	O	O
46	ATSC	Y	N	ATSC	-96.5	O	A	O	O
47	ATSC	N	N	ATSC	-93.1	O	O	O	O
48	ATSC	Y	N	NTSC	-105.4	A	O	O	O
49	NTSC	N	N	ATSC	-	O	O	O	O
50	NTSC	N	Y	NTSC	-95.0	O	O	O	O
51	ATSC	N	N	ATSC	-95.9	A	A	O	O

5.10 TV-Sensing (Channel Occupancy) Field Test Summary

This section provides a summary of the prototype TV WSD field trial results obtained at the nine test sites.

In reducing the data from the TV sensing field tests it became obvious that two available parameters can be used to define a set of conditions which apply uniquely to each channel under consideration for "white" space use. These two parameters have been labeled "Within Contour" and "Viewable" in this report and each has a value of either yes (1) or no (0). This binary combination yields four possible conditions that will uniquely describe each TV channel at a particular location. These four conditions are:

- Condition I: the WSD is operating within the service contour of a station assigned to the channel and the broadcast signal can be displayed on a representative consumer TV receiver system (viewable).

- Condition II: the WSD is operating within the service contour of a station assigned to the channel but the broadcast signal cannot be displayed on a representative consumer TV receiver system (not viewable).

- Condition III: the WSD is operating outside of the service contour of a station assigned to the channel but the broadcast signal can be displayed on a representative consumer TV receiver system (viewable).

- Condition IV: the WSD is operating outside of the service contour of a station assigned to the channel and the broadcast signal cannot be displayed on a representative consumer TV receiver system (not viewable).

Table 5-60, presented below, defines how each channel between 21 and 51 was categorized at each of the field trial sites. In this table, each channel is assigned to one of the four conditions described above and then further segmented according to the signal type utilizing the channel (ATSC or NTSC).

Table 5-60. Categorization of Channels at Each Field Test Site.

Test Site	ATSC Channels			NTSC Channels			Condition IV
	Condition I	Condition II	Condition III	Condition I	Condition II	Condition III	
1	38,40,41,46	27,28,29,33, 34,35,36,39, 42,48,51	None	22,24,26,45, 50	32	None	21,23,25,30, 31,43,44,47, 49
2	27,29,33,34, 35,36,38,40, 41,42,46	39,48,51	None	22,24,32,45, 50	26	43	21,23,25,28, 30,31,44,47, 49
3	27,28,29,33, 34,35,36,38, 39,40,41,42, 46,48,51	None	30,47	22,24,26,32, 45,50	None	31,43,49	21,23,25,44
4	27,29,30,33, 34,35,36,38, 39,40,42,43, 46,48,51	28,41	None	22,23,24,25, 26,32,45,47, 49,50	None	None	21,31,44
5a	36,48	27,28,29,30, 33,34,35,38, 39,40,41,42, 43,46,51	None	26,32,45,50	22,23,24,25, 47,49	None	21,31,44
5b	27,33,34,35, 36,38,39,40, 46,48,51	28,29,30,41, 42,43	None	22,23,24,25, 26,32,45,49, 50	47	None	21,31,44
6	27,29,33,34, 35,36,38,39, 40,41,42,46, 48,51	None	21	22,24,26,32, 45,50	43	23,25,49	28,30,31,44, 47
7	34,35,36,38, 39,48	28,29,40,41, 44,46	27,30,33,43	25,31	None	22,23,24,26, 45,47,49,50	21,32,42,51
8	None	28,29,34,35, 36,38,39,40, 41,44,46,48	30	25	31	24,26,42,43, 50	21,22,23,27, 32,33,45,47, 49,51
9	None	28,29,34,35, 36,38,39,40, 41,44,46,48	None	25,31	None	22,26,32,42, 43,45,50	21,23,24,27, 30,33,47,49, 51

Tables 5-61 through 5-66 provide the results from the field trials in terms of the ability of each WSD prototype to correctly identify Condition I, II, III or IV channels. For each condition, the number of correct detections is shown as a function of the number of scans performed. While this approach presumes that Condition II and III channels represent occupied, rather than available channels, the arithmetic complement of each reported result defines the performance under the opposite presumption (*i.e.*, that they represent available channels).

Table 5-61. Adaptrum WSD Prototype Field Trial Results.

Test Site	ATSC			NTSC			Condition IV
	Condition I	Condition II	Condition III	Condition I	Condition II	Condition III	
1	8/8	11/22	-	12/15	0/3	-	18/21
2	20/22	6/6	-	9/10	2/2	0/2	13/18
3	14/15	-	3/3	12/12	-	3/6	2/7
4	13/15	1/2	-	20/20	-	-	3/3
5a	2/2	9/15	-	6/8	1/12	-	3/3
5b	11/11	1/6	-	16/18	0/2	-	2/3
6	13/14	-	1/1	9/12	0/2	0/6	7/7
7	4/6	3/6	4/4	4/4	-	1/16	4/5
8	-	11/24	2/2	4/4	4/4	3/20	17/26
9	-	5/12	-	2/4	-	4/14	10/12
Totals[1]	91%	51%	100%	89%	30%	17%	75%

Notes: A significant spurious emission was observed at 600 MHz (see Appendix H) that may have prevented accurate detection on channel 35.
[1] Percentage of successful identifications of the channel occupancy under assumed conditions.

Table 5-62. I2R WSD Prototype Field Trial Results.

Test Site	ATSC Channels			NTSC Channels			Condition IV
	Condition I	Condition II	Condition III	Condition I	Condition II	Condition III	
1	-	-	-	2/20	0/4	-	12/16
2	-	-	-	5/20	1/4	0/4	14/21
3	60/60	-	6/8	17/24	-	6/12	9/16
4	55/60	1/8	-	11/40	-	-	12/12
5a	4/4	12/30	-	1/8	0/12	-	6/6
5b	22/22	8/12	-	3/18	0/2	-	6/6
6	53/56	-	2/4	7/24	2/4	0/12	14/20
7	18/24	9/24	12/16	0/8	-	5/32	16/16
8	-	18/48	4/4	0/4	0/4	3/20	33/40
9	-	3/48	-	0/8	-	0/28	31/36
Totals[1]	94%	30%	75%	25%	10%	13%	81%

Notes: This device was inadvertently operated in "all signal" mode at test sites 1 and 2, which was the wrong mode for DTV detection. Therefore, no ATSC results are presented for these two test sites.
[1] Percentage of successful identifications of the channel occupancy under assumed conditions.

Table 5-63. Motorola WSD Prototype (Sensing Mode) Field Trial Results.

Test Site	ATSC Channels			NTSC Channels			Condition IV[1]
	Condition I	Condition III	Condition IIII	Condition I	Condition III	Condition IIII	
1	16/16	28/44	-	-	-	-	0/7
2	40/44	9/12	-	-	-	-	8/13
3	56/60	-	4/8	-	-	-	0/1
4	55/60	3/8	-	-	-	-	4/4
5a	4/4	15/30	-	-	-	-	-
5b	19/22	6/12	-	-	-	-	-
6	49/56	-	-	-	-	-	4/4
7	19/24	12/24	9/16	-	-	-	8/12
8	-	23/48	3/4	-	-	-	21/29
9	-	13/48	-	-	-	-	15/24
Totals[2]	90%	48%	57%	-	-	-	64%

Notes:
[1] Since in the test mode the prototype device detects only ATSC signals, those channels not identified as occupied could not be determined with certainty to be available or to be occupied by NTSC signals.
[2] Percentage of successful identifications of the channel occupancy under assumed conditions.

Table 5-64. Motorola WSD Prototype (Geolocation Mode) Field Trial Results.

Test Site	ATSC Channels			NTSC Channels			Condition IV
	Condition I	Condition III	Condition IIII	Condition I	Condition III	Condition IIII	
1	8/8	22/22	-	10/10	2/2	-	14/18
2	22/22	6/6	-	10/10	2/2	2/2	12/18
3	30/30	-	4/4	12/12	-	2/6	8/8
4	30/30	4/4	-	20/20	-	-	6/6
5a	2/2	15/15	-	4/4	6/6	-	3/3
5b	11/11	6/6	-	9/9	1/1	-	3/3
6	28/28	-	0/2	12/12	2/2	0/6	10/10
7	12/12	12/12	4/8	4/4	-	6/16	6/8
8	-	24/24	0/2	2/2	2/2	0/10	14/20
9	-	24/24	-	4/4	-	3/14	12/18
Totals[1]	100%	100%	50%	100%	100%	24%	71%

Notes:
[1] Percentage of successful identifications of the channel occupancy under assumed conditions.

Table 5-65. Philips WSD Prototype Field Trial Results.

Test Site	ATSC Channels			NTSC Channels			Condition IV
	Condition I	Condition III	Condition IIII	Condition I	Condition III	Condition IIII	
1	16/16	40/44	-	20/20	4/4	-	11/36
2	44/44	12/12	-	20/20	4/4	4/4	2/36
3	60/60	-	8/8	24/24	-	12/12	0/16
4	60/60	8/8	-	40/40	-	-	5/12
5a	4/4	28/30	-	8/8	12/12	-	2/6
5b	22/22	10/12	-	18/18	2/2	-	1/6
6	56/56	-	4/4	24/24	4/4	12/12	3/20
7	24/24	22/24	16/16	8/8	-	32/32	3/16
8	-	47/48	4/4	4/4	4/4	20/20	3/40
9	-	42/48	-	8/8	-	28/28	3/36
Totals[1]	100%	92%	100%	100%	100%	100%	15%

Notes:
[1] Percentage of successful identifications of the channel occupancy under assumed conditions.

Table 5-66. Philips WSD Prototype (w/external attenuator) Field Trial Results.

Test Site	ATSC			NTSC			Condition IV
	Condition I	Condition III	Condition IIII	Condition I	Condition III	Condition IIII	
3 (6dB)	15/15	-	2/2	6/6	-	3/3	0/4
4 (10dB)	30/30	3/4	-	20/20	-	-	5/6
5a (10dB)	2/2	11/15	-	4/4	5/6	-	3/3
7 (10dB)	6/6	2/6	3/4	2/2	-	7/8	1/4
8 (10dB)	-	11/12	0/1	1/1	1/1	5/5	4/10
Totals[1]	100%	73%	71%	100%	86%	92%	48%

Notes:
[1] Percentage of successful identifications of the channel occupancy under assumed conditions.

Table 5-67 shows the overall percentage of accurate signal detections confined to those channels whose occupancy status is easily established (Condition I and IV channels) over all nine of the test sites. The results are presented for Condition I (occupied) ATSC (digital) and NTSC (analog) channels and for Condition IV (available) channels.

Table 5-67. WSD Signal Detection Performance

Prototype WSD	Condition I		Condition IV
	ATSC Occupied Channels	NTSC-Occupied Channels	Unoccupied (Available) Channels
Adaptrum	91 %	89%	75%
I2R	94%	25%	81%
Motorola (geo-loc)	100%	100%	71%
Motorola (sensing)	90%	-	64%
Philips	100%	100%	15%

It should be noted that the reported NTSC-detection performance may be somewhat misleading since no consideration was given to the quality of the analog picture when identifying "viewable" channels.

5.10.1 Observations Based on Results

The TV-sensing field trial results indicate that the Motorola WSD, which employs a geo-location/database look-up approach to identify occupied and unoccupied TV channels, was the best overall performer with respect to correctly determining occupied and unoccupied (available) TV channels within TV station service contours. This prototype also employs a spectrum sensing capability that was found to perform with less accuracy than that of other devices.

The results obtained from those WSD prototypes that rely solely on spectrum sensing to identify occupied and unoccupied (available) channels demonstrate the importance of correctly specifying a detection sensitivity requirement. The Philips device, which demonstrated the most sensitivity in the laboratory tests, also performed best with respect to detecting occupied channels; however, it reported a very high percentage of channels occupied that were potentially available. The Adaptrum and I2R devices, which demonstrated less sensitivity in the laboratory measurements, did much better at correctly determining available channels but did not detect occupied channels with complete reliability.

The comparative received power measurements performed at each test site indicate that the difference in signal level between TV signals received by a roof-top television antenna and those received by ground-proximate antenna can vary between 0 and 34 dB, depending on the specific site conditions and whether the WSD antenna is located indoors or outdoors relative to the TV antenna.

6 Wireless Microphone Measurements

6.1 Wireless Microphone Laboratory Tests

6.1.1 Introduction

The purpose of this part of the test project was to observe the capabilities of the current white space device (WSD) prototypes to sense Part 74 wireless microphones (WM) operating on broadcast television channels at known signal levels with and without digital television (DTV) signals on adjacent channels. Tests were performed with two different types of microphones – FM modulated and digitally modulated.[38] All of the tested microphones occupy a 200 kHz segment within a TV channel. Each microphone was limited to operation in a different subset of television channels 21 to 51; individual microphones were tested on frequencies within their subset as shown in the test results. The test modulation was a 1000 Hz tone at 24 kHz deviation. The two FM microphones had a 32 kHz pilot tone and the digital microphone was encrypted. The measured modulated signal for the FM microphones is shown in Figure 6-1 and the measured signal of the digital microphone, which appears the same with or without modulation, is shown in Figure 6-2.

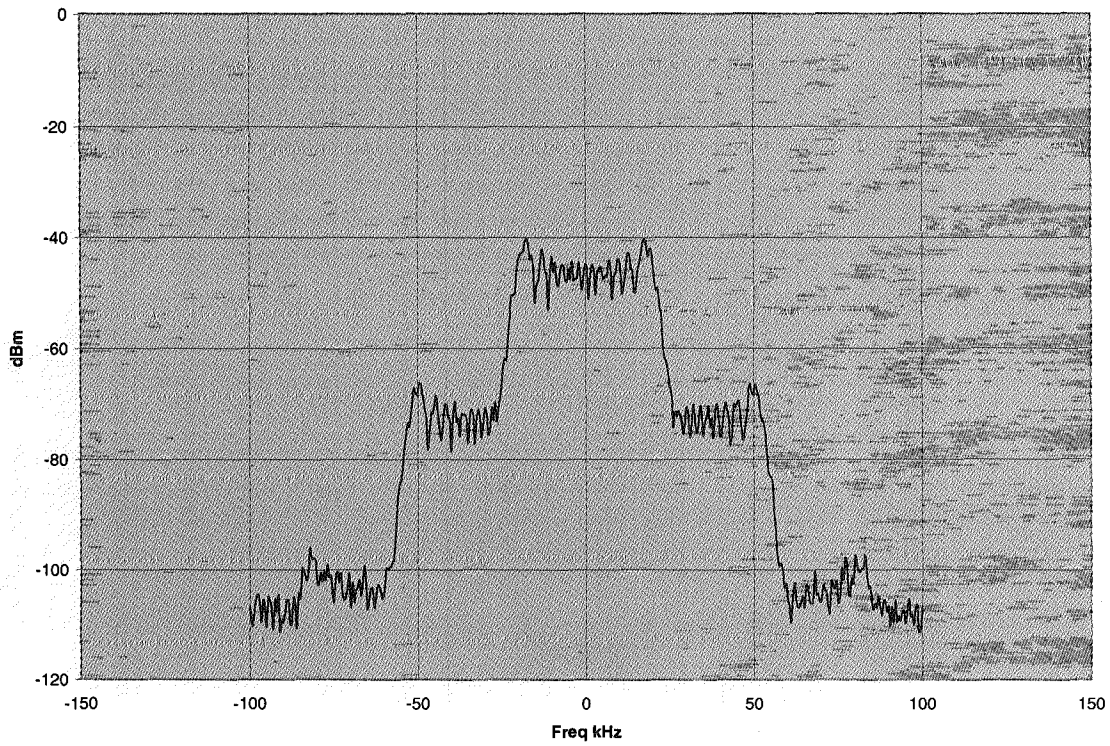

Figure 6-1. FM Microphone Signal

[38] Two FM microphones manufactured by Shure Incorporated and one digital microphone manufactured by Lectrosonics were loaned to the Commission for testing.

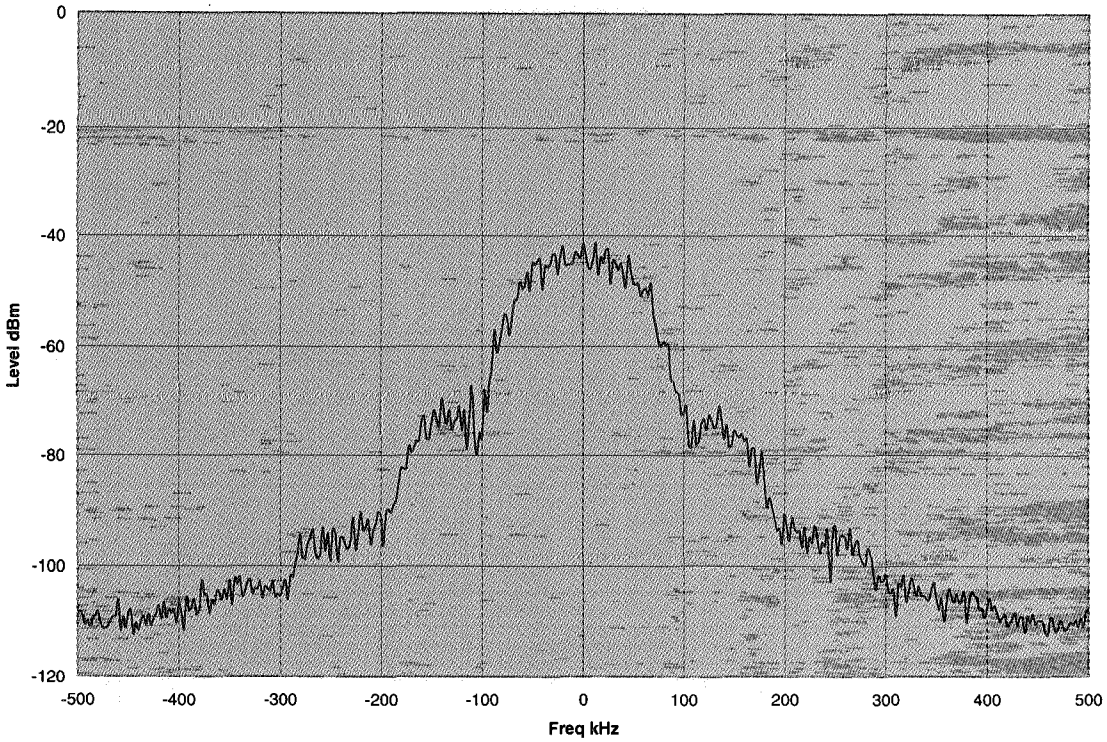

Figure 6-2. Digital Microphone Signal

The WSDs submitted by Microsoft and Philips were similar to those submitted in the previous round of testing (Phase I) with respect to their ability to detect wireless microphones with some modifications. The changes eliminate the ability to select the type of signal (ATSC, NTSC or wireless microphone) to search for and the identification of the type of signal sensed. The versions of both of these WSDs examined in the Phase II tests searched for all three types of signals on each scan of a channel and indicated only whether the channel was occupied or available on each scan or the probability of detection for the number of scans selected. The Institute for Infocomm Research (I2R) device was also able to detect wireless microphones. It provided two scan modes – "DTV" and "All" and two test modes – "Lab" and "Field". In the DTV scan mode it searched only for DTV signals and in the "All" mode it searched only for microphones. The "Lab" test mode was intended only for conducted bench testing and the "Field" mode was intended only for reception of radiated signals with an antenna. The test results were displayed as the probability of detection for the number of scans selected.