ASSOCIATION FOR **MAXIMUM SERVICE TELEVISION, INC.**

P.O. Box 9897
4100 Wisconsin Avenue, NW
Washington, DC 20016

Tel (202) 966-1956
Fax (202) 966-9617

May 15, 2007

Via Electronic Filing

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12 Street, SW
Washington, DC 20554

Re: Notice of Ex Parte Communication,
ET Docket Nos. 04-186, 02-380

Dear Ms. Dortch:

On May 14, 2007, Mr. Bruce Franca of the Association for Maximum Service Television (MSTV) met with Mr. Rick Chessen of Commissioner Copps's Office with regard to above captioned proceeding.

Mr. Franca discussed MSTV's most recent comments with regard to the OET Receiver Report prepared by Mr. Stephen R. Martin. In particular, Mr. Franca discussed the Report's description of the differences in interference to analog and digital television reception; its findings with regard to extent weak signal conditions occur within a TV station's contour; and, its findings with regard to adjacent channel DTV receiver interference rejection performance. Receiver test results from the University or Kansas and the Canadian Research Centre were also discussed.

Mr. Franca also discussed the obvious deficiencies of the so-called Microsoft TV White Spaces Development Platform and the potential for interference from such personal/portable TV band devices as presented in MSTV's previous filings in this proceeding. Mr. Franca reiterated the need for an open and transparent test program if the Commission elects to test such devices.

The attached "talking points" document covering the above points was provided to Mr. Chessen.

Respectfully submitted,

Bruce Franca
VP, Policy and Technology

CC: Rick Chessen

May 10, 2007

MSTV White Spaces Talking Points

1. ANALOG INTERFERENCE VERY DIFFERENT THAN DTV INTERFERENCE

- **Interference to analog TV reception is a gradual process.** "An 8-dB increase in signal level of an interferer from the TOV level for analog TV may cause the interference effect to grow to the "slightly-annoying" level, from the TV viewer's point of view. A total increase of 20 to 30 dB may be required to make the analog picture unusable."
- **Interference to digital TV reception is abrupt.** "The ATSC digital television broadcast system can achieve flawless picture reception under interference conditions that would produce an unusable picture for analog broadcast TV; however, once an undesired signal reaches a level at which picture impairments become visible on a DTV receiver, the picture degrades extremely rapidly with further increases in undesired signal level. The rapid degradation from flawless picture to no picture at all is known as the cliff effect. … For example, in most cases, increasing interference level about 1 dB above TOV caused complete loss of picture. … In a few cases picture loss occurred concurrently with appearance of errors or with only an additional 0.1 dB increase in interference—an extremely abrupt cliff!"

  Above text from FCC Report at 15-2 to 15-3.

BOTTOMLINE: Unlike digital, a mistake with regard to interference protection criteria in the analog situation is not critical. If value is off a few dB, impairments is barely noticeable. In digital, choosing the right interference protection is critical or viewers lose service – need to be cautious.

2. POTENTIAL INTERFERENCE DISTANCES ARE SUBSTANTIAL

- **Co-channel interference distance from even a 100 mW device to DTV receiver can be miles.** Interference is not a same house or next door neighbor phenomena. Even very conservative R^4 propagation model yields a 10 kilometer interference distance. Intel suggested a 5 kilometer interference distance in earlier filings (75 sq km.). (Remember Mobile phones operate with about 100 mW and communicate to base stations miles away – interference ranges greater than communications capability.
- **Adjacent channel interference can be up to 100s of meters.**
- **Out-of-band emission (15.209) limit inadequate and could result in interference distances of 78 feet.**

3. PERSONAL/PORTABLE DEVICE ISSUES

- **Adjacent channel operation within the TV service area will cause interference.**

  - FCC Report states that "the DTV receivers are at their most vulnerable when operating at low desired signal levels."
  - FCC Report shows that 84% of a typical TV station's service area is in a "weak signal" condition.
  - FCC measured D/U ratios shows interference from 100 mW device will occur at or near this weak signal condition.

  Measurements contained in the FCC Report show that adjacent channel operation could cause potential interference to 80 to 87% of a typical TV station's service area depending on DTV receiver. FCC only tested eight "best"receivers. Including CRC and University of Kansas receiver measurements would show even greater interference potential. (See, Figure 2-3 of FCC Receiver Report and Table A-4, D/U ratios for Desired Signal = -68 dBm.)

- **Sensing as proposed by Coalition doesn't work.** Coalition asserts that sensing at the -114 dBm level or 30 dB below the level that a DTV receiver "will provide broadcasters with the interference protection to which they are entitled." We think we're entitled to the no harmful interference standard specified in §15.5. That means no co-channel operation within the protected contour of a TV station. (In fact, the device must be some significant distance *beyond* the protected contour in order not to cause interference. Intel in earlier comments suggested 5 km. MSTV/NAB analysis suggests 10-15 km is needed.)

  Let's look at the 30 dB value. First, there can be significant physical differences between the receiving system used by an unlicensed portable device and a TV viewer. The TV viewer may have a high gain (10 dB) antenna located on the roof at 30 feet. This can easily result in the TV receiving system being better by a difference of 17 dB or more. In addition, the TV band device is suppose to be beyond the contour and therefore receiving a lower signal level. So the REAL MARGIN is not 30 dB but less than 13 dB. This 13 dB is clearly not sufficient to take into account normal propagation variation; attenuation from being inside a building; attenuation from terrain and other buildings; and, any destructive multipath that might be experienced.

  NAF submitted indoor DTV measurements that show that DTV signals on the same channel varied by more than 20 dB for different rooms within a single home. They also showed that the signal varied by more than 30 dB among nearby homes. CEA showed that building attenuation can be more than 40 dB. MSTV submitted measurements made in 1995 during the 8VSB/COFDM debate) that showed that -114 dBm can occur within the TV contour.

Bottomline: Personal/portable devices should not be permitted. Adjacent channel operation even at 100 mW potentially could cause interference to the vast majority of a typical TV station's service area based on FCC DTV receiver measurements. The record

clearly shows that sensing at 30 dB below TOV or -114 dBm is not sufficient to ensure operation outside protected contour of a TV station.

4. ANY TESTING OF DEVICES SHOULD BE OPEN AND TRANSPARENT WITH TEST PROCEDURES AND PLANS DISCLOSED BEFORE TESTING BEGINS OR IS COMPLETED

5. USE OF TV BAND FOR PROVISION OF BROADBAND SERVICES POSSIBLE

- **TV Bands can be used for broadband operations using 802.22 approach particularly for provision of rural WISP type services.** Broadcasters support such an approach that will meet the genuine needs for broadband deployment.

- **Geolocation/database approach will ensure that operations are outside protected contour and do not cause interference.**

- **Base station "control" means that interference can be fixed if it occurs.** For example, FCC receiver tests show interference can increase significantly in the presence of certain multiple undesired signals. Unlike the situation of personal/portable devices where there is no way to eliminate interference. In the WISP model, since the base station "tells" the consumer premises equipment what channel to operate on, if interference occurs, it can be corrected through the base station control.

DTV Receiver Test Results

	D/U for N-1 at 68 dBm	DTV FS where IX begins[1]	N-1 Interference Area (% of TV Service Area)[2]	D/U for N+1 at 68 dBm	DTV FS where IX begins[1]	N+1 Interference Area (% of TV Service Area)[2]	Free Space Interference Distance at Edge of DTV Contour[3]
FCC Best Receiver	-40.1	-68.1	84%	-42.1	-70.1	80%	56 meters
FCC Worst Receiver	-37.9	-65.9	87%	-37.9	-65.9	87%	112 meters
FCC 2nd Worse	-38.0	-66	87%	-38.3	-66.3	87%	100 meters
FCC Median	-39.3	-67.3	85%	-39.7	-67.7	84%	80 meters
UK Receiver #1	-24	-52	97%	-31	-59	94%	562 meters
UK Receiver #2	-31	-59	94%	-39	-67	85%	178 meters
UK Receiver #3	-30	-58	95%	-29	-57	96%	223 meters
CRC Receiver #1	-29.7	-57.7	95%	-27.5	-55.5	96%	282 meters
CRC Receiver #2	-34.2	-62.2	92%	-37	-65	88%	126 meters
CRC Receiver #3	-36.7	-64.7	89%	-36.5	-64.5	89%	100 meters
CRC Receiver #4	-37.2	-65.2	88%	-39.0	-67	85%	89 meters
CRC Receiver #5	-37.7	-65.7	88%	-37.0	-65	88%	100 meters

[1] DTV field strength (FS) at which the measured D/U ratio for each tested DTV receiver would be violated and interference could be caused by a 100 mW device at 10 meters (-28 dBm).

[2] Percentage of DTV station's service that has a field strength equal to or less than required to meet the measured D/U ratio for each tested DTV receiver that would be therefore be subject to potential interference from a 100 mW device at 10 meters.

[3] The distance a 100 mW device could potentially cause interference to each tested DTV receiver at the edge of a DTV station's service area using the free space propagation model.