# EXHIBIT 1

## Summary of Application

## WNYZ-LP, New York, NY (Facility I.D. No. 56043)

This application proposes to displace recently licensed WNYZ-LP, Channel 49, New York, New York, to Channel 6, from the currently licensed transmitter site. WNYZ-LP on Channel 49 is only 87 km from co-channel Station WEDW, Channel 49, Bridgeport, Connecticut, much less than the permitted 265 km for displacement. Further, WNYZ-LP operating on Channel 49 is now receiving considerably more interference in many locations in its protected contour than anticipated based on predictions and prior testing in the coverage area. Therefore, Channel 49 is effectively covering only a small percentage of New York City - - far less than our primarily ethnic audience requires.

The following facts are shown in this application:

1) No interference will be caused to WNYW, Channel 5, New York, NY, per §74.705(d)(3) of the FCC rules as proven by line of sight calculations.

2) No interference will be caused to WNYW, Channel 5, New York, NY, as shown by two separate Longley-Rice analyses.

3) Channel 6 will provide a watchable signal for WNYZ-LP in most areas within the 68 dbu contour.

4) No persons near the transmitting antenna will be subject to radiation above the allowable levels.

5) No other channels are available for displacement.

6) Use of filters will protect all FM radio stations from direct or harmonic interference.

7) WNYZ-LP operating on Channel 6 will not be class A.

8) WNYZ-LP operating on Channel 6 will promptly eliminate any interference it causes.

9) Island Broadcasting Co. has for many years been operating with two pairs of adjacent channels with no interference observed.

A waiver of §74.705(b)(1) is respectfully requested and is justified by the information contained herein.

**Item 1** **Interference to WNYW per §74.705(d)(3)**

Section 74.705(d)(3) of the FCC rules allows an upper adjacent VHF LPTV to be no more than 12 db above the lower full power TV station in any location. (Bulletin OET69 permits 13 dB.) A careful analysis, including field testing, proves that nowhere will the 12 dB value be reached or exceeded.

Four separate regions must be analyzed. The first is the area around the null in the vertical pattern of Channel 5. The second is the shadow area created by the stand alone tower on which Channel 6 is mounted. The third is all of the area close to the Channel 6 location. The fourth is all other areas.

Because the first three regions involve distances which are small, the equations for line of sight signal levels were used, instead of the FCC curves, as being more accurate, although the differences were quite small. The calculations are all based on the data given in **Exhibit 1-5**. The vertical pattern of Channel 5 for both the main and auxiliary antennas as filed show an infinitely deep first (and only) null at a depression angle of about 27 degrees. Using equations 1 and 2 of Exhibit 1-5, and the height, ERP, and radiation patterns of both Channel 5 and Channel 6 as proposed, it can be shown that Channel 6 will exceed Channel 5 by more than 12 dB only in a band about 0.28 meters (= 10½ inches) wide, either side of a circle of 858 meters radius around the transmitting antenna (for the main antenna). This is shown in **Exhibits 1-1** and **1-3**; the width of the line is about the 10½ inch area in which Channel 6 will exceed Channel 5 by more than 12dB! In actual fact, an infinite null of course cannot be achieved. Field tests done at a number of relatively reflection free sites with line of sight to the Channel 5 main and auxiliary antenna showed no nulls even as deep as 20 dB anywhere on 34th Street or Fifth Avenue, in the vicinity of both predicted nulls. Therefore, in reality, even in this 21 inch band, there is no

evidence that Channel 6 actually exceeds Channel 5 by more than 12 dB. However, the area of such a narrow band, and the population within it, are negligible. Even if it were possible to determine who has a TV receiver on this 21 inch wide area, in this part of Manhattan there are very few residences. It was thus concluded that the area around the theoretical null in the vertical plane pattern can be effectively ignored. (½ percent of the 18 million persons in the Channel 5 coverage area is 90,000 persons, for reference.)

The shadow area created by the only tall (above 5 stories) building in the vicinity of the Channel 6 transmitter site is shown in **Exhibits 1-1** and **1-2**. The shadow area within about 1500 meters of the building consists entirely of industrial buildings and railroad yards, as can be seen in **Exhibit 1-2**, which shows the type of construction by color code. In addition, field tests as close as Purves Street, 200 meters from the Channel 6 site, as well as along 43rd Avenue, from over 1200 meters from the site up to 2000 meters, showed no measurable reduction in field from Channel 5 between the shadow and non-shadow areas. It was therefore assumed that at these frequencies the shadow of a relatively narrow building is not a significant factor in signal reduction, because it is filled by signal bending around objects.

The third area under consideration is the region close to the 51 story building holding the Channel 6 antenna. **Exhibit 2**, a side view of the building (not to scale) shows the antenna location on the roof. **Exhibit 1-4**, top view (to scale) shows the proposed antenna locations. **Exhibit 1-5**, bottom, shows a typical calculation at a site 750 meters from the Channel 6 antenna site on the 130 degree (maximum signal) radial. A large number of other close-in sites were also analyzed in the same manner; this site yielded about the maximum Channel 6 value anywhere. The actual distance was used in each case, as was the actual ERP value derived from the vertical

patterns. Nowhere did the value of Channel 6 exceed that of Channel 5 by more than 2 dB and Channel 6 never reached 112 dBu anywhere.

Tests using 6 different color receivers indicated that saturation occurred between 118 dBu and 128 dBu, corresponding to about +4 to +14½ dBm. These tests also showed that when Channel 6 was at or near the maximum of 111½ dBu, 750 meters from the site, TOV interference to Channel 5 took place when Channel 5 was above 109 dBu. Therefore, a few locations in a very small area near the Channel 6 site, despite the fact that Channel 6 is at worst only 2 dB above Channel 5, may experience slight interference on certain receivers. However, as can be seen from **Exhibit 1-2** (which shows a scale), there is very little population in the area affected, and certainly nowhere near the number representing ½ percent, or 90,000. Actual measurements of Channel 5 at street level in this area show signal strength almost always below 109 dBu. It would therefore require a simultaneous combination of maximum Channel 6, Channel 5 above 109 dBu, and worst receiver, to show interference above TOV, within about 800 meters of the site and within ± 20 degrees of the 130 degree and 350 degree radials. Of course, §74.705(d)(3) is fully met everywhere, and this is the governing rule, but receiver saturation and intermodulation or cross-modulation is also shown to be well within required limits due to WNYZ-LP Channel 6 as proposed.

The fourth region considered was all other areas. Channel 5 exceeded Channel 6 almost everywhere by as much as 30 dB within the 68 Dbu (A grade) contour of Channel 6, and much more elsewhere. (This will be considered later in this discussion, under Item 3.)

It has therefore been shown that the proposed Channel 6 will nowhere exceed the value of Channel 5 field strength by more than the 12 dB permitted in §74.705(d)(3) of the rules.

It is interesting to note that tests confirmed the accuracy of the 12 dB figure. Using a 10 milliwatt Channel 6 modulator, the threshold of visibility (TOV) of herringbone interference occurred at just 12 dB difference, with Channel 5 received over the air at the Channel 6 site. These tests were done with a variety of receivers, and a spectrum analyzer used simultaneously, permitting continuous visual and aural monitoring on a TV screen and on an analyzer as the relative strength of Channel 5 and Channel 6 were varied. No significant difference was seen in TOV between weak and strong signals.

Data on the auxiliary antenna show very similar results to that on the main antenna. It should also be noted that the entire area around the Channel 6 site is industrial with very few residences, and therefore, all areas considered where Channel 5 might be below Channel 6 in field have very small combined populations, certainly well under the ½ percent allowed, although even in these areas Channel 6 never does exceed Channel 5 by more than 2 dB.

**Item 2** **Longley-Rice Analysis**

In addition to the analysis in Item 1 described above, two separate Longley-Rice analyses were undertaken, one using the Sun-blade computer identical to the FCC computer, and the other using V soft. Both main and auxiliary WNYW applications were considered, as well as the current, now defunct, license. Since the terrain, especially in the areas of heavy population, is relatively flat, and since deep pattern nulls face the midtown and lower Manhattan high buildings, the use of Longley-Rice appears as well suited as in most urban locations, where its use has been accepted for years. In fact, thousands of full service and lower power applications have been granted based on Longley-Rice analyses, and only a very few have ever shown significant departure from the predicted interference results. (See Item 9 of this filing.)

The results of all Longley-Rice analyses show no interference by the Channel 6 proposal to WNYW Channel 5 as filed, as shown in **Exhibit 2-1** for the Sun-blade, and **Exhibit 2-2** (pp 1 & 2) for V-soft. Also included are maps of coverage and interference areas, as **Exhibits 2-3** and **2-4**, for the main and auxiliary WNYW applications. Therefore, Longley-Rice agrees with the more detailed analyses contained in Item 1, supporting the Longley-Rice theory.

**Item 3 Channel 6 will be widely viewable**

While the testing described previously confirmed that TOV interference occurs at about a 12 dB level difference, it was also found that for most receivers tested, the disturbance to the viewer increases very slowly as the level exceeds 12 dB for Channel 5 above Channel 6. (It was found that despite the FCC rules, the TOV interference from 5 to 6 was also closer to 12 dB than the 6 dB predicted.) With Channel 5 at –50 dBm and 25 dB above Channel 6, only a slight herringbone and faint sync bar were seen on Channel 6 on most receivers. As the strength of Channel 5 increased toward –35 dBm, the interference to Channel 6 increased, such that Channel 5 could only be about 15 dB above Channel 6 for the latter to be comfortably viewable when Channel 5 was as strong as –30 dBm.

However, it is anticipated that Channel 6 will be fully watchable in a significant percent of the A grade coverage area (see **Exhibit 5**). This is further confirmed in Item 9 of this filing.

**Item 4 Area will be safe near antenna**

**Exhibit 4-1** gives radiation exposure calculations as required by FCC rules, and shows that in both controlled and uncontrolled environments the levels are well below the maximum allowed.

This can be further confirmed by viewing **Exhibits 2, 3** and **1-4**. **Exhibit 2** shows that the antenna plane is about 3 meters above the roof and entirely overhanging it. **Exhibit 1-4**

shows the antennas to scale in relation to the roof area, and Exhibit 3 shows the low rear pattern level of each CL-46 section, and the low vertical pattern level at 90 degrees. Therefore, the roof radiation should be very low.

In addition, after any change is made in antennas on this roof, a complete site re-survey is always conducted to assure compliance with the cumulative radiation levels.

**Item 5 Search for Displacement Channels**

**Exhibit 5-1** shows consideration for every Channel, in and out of core, and the reason why that channel cannot be practically used to cover a large part of New York City, as required here. Public safety uses are based on actual use, actual interference, and petitions to deny and objections filed in the past by public safety users. Auctioned channels are also not available.

**Item 6 Use of Filters**

**Exhibit 6-1** shows the response of the filter which will be used in this filing. A narrower pass band filter will be employed if required, and notch filters will be used and added as required to protect all primary stations, TV or Radio, in the area.

**Item 7 Not Class A**

WNYZ-LP is not a Class A station, and present rules do not contemplate it ever becoming Class A. Even if offered in the future, there appears to be no value to WNYZ-LP to becoming Class A, and any such future offer will be refused. Therefore any change in coverage, location, power etc. ever contemplated by primary TV or radio stations in the area may be made without concern for WNYZ-LP Channel 6.

**Item 8 No caused interference**

Any interference which can be shown to be caused by WNYZ-LP to a legally operating primary TV or radio station will be promptly eliminated by WNYZ-LP at no cost to anyone except

WNYZ-LP. Primary stations do not have to accept any interference from secondary services, and WNYZ-LP will go off the air if necessary if no other solution is found.

**Item 9 Adjacent channel operation now**

Island Broadcasting Co.'s ("Island") WNXY-LP, Channel 26, New York, NY, has for years operated at 25 kw peak, dropping to much lower values at the pattern edge. WNYE-TV, Channel 25, New York, NY, operates a little over 2 miles away at about 2500 kw, yet no interference has ever been observed to Channel 26 which would preclude comfortable viewing. Similarly, Island's WXNY-LP, Channel 32, New York, NY, has for years operated near WPXN-TV, Channel 31, New York, NY, which has a high ERP, also with no observed significant interference. Measured levels show that WNYE-TV and WPXN-TV can be over 30 dB above WNXY-LP and WXNY-LP, respectively, without rendering the latter two channels unviewable. Therefore, it is anticipated that Channel 6 will be available to most viewers in the A grade (See Item 3).