



Broadcast Signal Lab

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Dear Mr. Laliberté,

On 26 August you asked me the following:

Can you give us an idea of:

- (1) *the extent of the blanketing if Heaven 97 and Gospel 88 relocate to one of these towers; and*
- (2) *the extent of the intermod product between Heaven 97 and Cayrock in the short term (i.e. with Cayrock still in George Town) and in the long term (i.e. with Cayrock on the Northward tower)?*

I have reviewed your questions and have prepared the following answers.

1. Blanketing if relocating to Prospect or to ICI?

At ICI, most of the blanketing would appear in an area already blanketed, which is helpful-- concentrate stations in one area so that the blanketing population is limited and so that many stations transmitting from one blanketing area can be received by people in the blanketing area. It is not ideal, interference-wise, to be on the ICI tower, another 1/4 mile NW of the Avcom tower in Newlands, rather than collocating on the Avcom or the Briggs tower there, but it is more desirable than going on the Prospect tower because it concentrates the blanketing to one area.

At the Prospect Avcom site, it appears that about 500 residences are within the 3/4 mile radius that was the (2007-8 report) estimated blanketing radius of the George Town Heaven 97 facility. Reducing to 1000 watts would potentially reduce the radius to perhaps 1/2 mile, comparable to the 2007-8 report estimate of CAYROCK. That is still probably 300 residences. Thus, moving to Prospect would merely relocate blanketing interference to 300-50 new residences not presently blanketed, in effect robbing Peter to Pay Paul. If CAYROCK remains in George Town, there is still blanketing interference in George Town, and the Prospect blanketing would represent an increase in the total population in blanketing, contrary to the general objective of move-out.

2. Extent of $2 \times 97.7 - 96.5 = 98.9$ intermod product if Heaven moves out.

Since Heaven and Vibe would be transmitting near each other (2.2 miles between Prospect and Newlands Avcom towers), there is essentially no opportunity for a receiver to be overloaded by Heaven and CAYROCK while receiving a weaker Vibe. The specific problem of interference to Vibe would be eliminated.

If CAYROCK were to move to Northward, or to Newlands, the problem would still be eliminated, as the problem was the result of the "near-far problem" in which Vibe was substantially lower in power in George Town than the two very strong local signals of CAYROCK and Heaven in George Town. This would be true even with Heaven also moved to Northward or Newlands (or Prospect). This is one of the reasons for trying to concentrate stations in one central geographic area.

Questions not asked

3. What about Newlands towers -- Avcom or Briggs? 95.5 is no longer on the air at Briggs and no longer sought as a frequency by third parties. With some modification, the 95.5 antenna (still up?) could likely be employed on the Briggs tower for Heaven 97. There might be a way to combine Gospel 88 on the antenna too. This addresses several siting issues.

- A. Uses a tower with existing broadcasters on it, to avoid creating new blanketing area,
- B. the antenna, if I recall correctly, is about 200 feet above ground, which reduces blanketing intensity near the tower, and provides essentially 4 times the coverage for the same power compared to a 100-foot height.

Alternatively, Heaven and Gospel might be able to share antennas at the Newlands Avcom tower with Spin and/or Vibe. Some analysis would need to be done to see what is necessary to collocate these facilities there. Shared antennas make most efficient use of the most precious commodity-- tower space, while there is plenty of ground space to support new transmitter facilities.

4. What about the power reduction to save electricity?

Reducing power reduces coverage. Our Survey showed that Spin 94.9 had the worst coverage among the stations in Newlands, due to the 1000 W power output level (all antenna heights in Newlands are about the same at present-- in the 200-foot range). With a transmitter power output of 1000 W and half the height (100 feet at ICI vs Spin's approximately 200-240 feet) Heaven will suffer a more degraded signal than Spin, assuming both use a similar antenna. A higher gain antenna can help offset a power reduction. Right now, Spin and Heaven each use a 4-bay vertical polarization antenna, if I recall correctly. So for a given

transmitter power and coaxial cable length, the effective radiated powers will be the same. 4 bay antennas require 40 feet (12 m) of vertical space on a tower. An antenna with enough gain to offset a power reduction of 50% would have to have 8 bays and occupy 80 feet (24 m). The trade-off is antenna cost and a 20 foot reduction in antenna center height in return for higher gain and less power consumption.

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