



dms Broadcasting Ltd.

Date: April 7, 2008
To: David Laliberte, ICTA
From: Bryan Hollenbaugh
Re: Broadcast Signal Lab Assessment

Good Afternoon David,

As per your request, dms Broadcasting has prepared it's comments relevant to David Maxson's assessment of the market. In response to the report, various concerns, comments and issues have been address by our consulting engineer, Mike Hagans. This information has been attached for your review and the board's consideration.

If you have any questions, feel free to contact me at 623-3322.

Best Regards,

Bryan D. Hollenbaugh
Market Manager

cc: Don Seymour
David Archbold
Karen Kersey

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Notes for dms comments on Broadcast Signal Labs report – 2007.

The “Report on the 2007 Survey of The State of FM Broadcasting in Grand Cayman,” which we will call “the Report” for brevity, contained plenty of good data and observations recorded on behalf of the Caymanian government (ICTA). Broadcast Signal Labs did a fine job for ICTA and we agree with many of their direct observations and claims. We believe that Broadcast Signal Labs (“BSL”) remained laudably objective for the most part, and their data on coverage seems to largely agree with dms’ own island-wide coverage study earlier in 2007, accomplished using a purpose-built, GPS-integrated signal quality and strength measurement system* during a comprehensive, practically continuous, sampling of active radio stations.

A few of the claims made in the report, however, appear to be drawn from anecdotal evidence or appear to draw conclusions that could be interpreted as establishing fault of one licensee or another; we believe that some of these claims should be subjected to further technical review and prudent testing before requiring expensive (yet potentially ineffective) action on the part of the licensee(s). Since the preparer of this document is contracted by dms, it will deal solely with issues that affect dms or its operations.

Regarding CayRock, 96.5MHz:

On Page 5 of the Report, BSL asserts that “Vibe 89.9 is experiencing interference in Georgetown from the Georgetown stations.”

Additionally, as part of the same executive summary, BSL claims that “the Georgetown stations emit spurs.”

As BSL has accurately described in the past, ALL transmitter sites can affect nearby receivers operating near the frequency of the transmitter. The amount of “receiver-induced interference effect” is largely determined by the high relative signal level in the proximity of the transmitter – which is based on individual stations’ power levels, frequencies, and directionality of their antenna systems’ (horizontal and vertical) radiation patterns – the quality of the receiver, and the distance between the receiver and the transmitter in question.

In the body of the Report, BSL makes passing notice of the difference in antenna types between the potentially problematic “Georgetown three.” They also noted that Cayrock’s power is ½ that of Heaven 97.7. However they lumped all three stations together, using the highest power of the three and a circular horizontal signal distribution “pattern” in Figure 4 (page 31). This figure presents a very unrealistic representation of the probable interference area related to CayRock. The directional pattern for CayRock is much closer to a skewed bowtie – probably impacting a *significantly* smaller number of buildings than the 250-300 claimed on page 30. Since there are no closely-adjacent frequencies to Cayrock; since it’s pattern is far from circular, and it’s power level is among the lowest, it is likely that the footprint of receiver induced interference issues caused by Cayrock is among the smallest of all the stations on the island.

* Audemat-Aztec Navigator 100

Notes for dms response to BSL’s 2007 FM Survey – Grand Cayman

The preceding g comments about receiver-induced interference are unrelated to any spurious emissions that may be present. However, as with the blanket treatment of the three Georgetown stations with regard to receiver-induced interference, Cayrock is (apparently) assumed to be THE CAUSE of the spurious emission being observed at 95.3MHz (page 35). While it is certainly possible that CayRock is generating the observed spur, it is also possible that 97.7 could be producing the spur. Just because a station's frequency or harmonic is mathematically linked to the errant signal, does not mean that the mixing is occurring in that station's transmission system. With minor participation (willingly offered by dms) measurements made at a sample port on the feedline of each potential contributor to the spur could be used to pinpoint the culprit or culprits before requiring expensive remedial measures. We agree that this issue should be addressed immediately – and offer our cooperation in finding the source of the problem. If our system is indeed generating a mixing product that exceeds allowable standards, we will remedy the situation as quickly as practical.

Northward stations:

Similar to the alleged CayRock spurs, if we are responsible for generation of spurious emissions beyond allowable limits (especially in the aircraft band), we must remedy the situation as quickly as we can. The star combiner intrinsically provides some protection from out of band signals, so the mixing is at least as likely to be occurring in the 105.3 portion of the system as in the dms portion. 89.9's out of whack vertical pattern may exacerbate the problem, but it may be less expensive (monetarily and in good-will) for us to agree to pay for half of the recommended filter (between the final combiner and our antenna) up front – instead of pointing fingers back and forth, then doing invasive testing (requiring all three dms stations to be off the air several times) and potentially finding out that the entire thing is “our fault.”

Summary – we agree that spurious-signal interference issues should be identified and resolved quickly island-wide.

We disagree, however, that the Georgetown three should be forced to move based on complaints from competitor, Vibe.

Unless the Caymanian government requires ALL broadcasters to co-locate on a centralized tall-tower, there will always be areas of receiver-induced “blanketing” interference. No matter where transmission facilities are located, some nearby inexpensive radios will be hampered in receiving more-distant stations. The forced move of the duly licensed dms stations from the Glass House site appears to have been based on the very vocal complaints of a direct competitor who would not allow dms to replace their very-poor-quality studio receiver, and a single-digit number of complaints from (potentially encouraged by same) Radio Cayman listeners.

It MIGHT be reasonable to limit the existing Georgetown stations to some reasonable nearfield signal level if they remain in their current transmission facilities, effectively capping their current or future power levels, as long as they were kept exempt from the potential requirement for full-island coverage.

The idea of providing ERP information (including directional patterns, where applicable) to the ICTA is a good one, but only if it is information that can be used by ICTA to improve the public service of broadcasting or minimize future problems due to poor or nonexistent engineering of broadcast facilities. Accurate HAAT (or at least AGL) information should also be made available. The same information SHOULD be gathered for STL (microwave) paths and any long-term OB/RPU paths.

Meaningful engineering review of license applications would reveal plans that are problematic or inconsistent with government's overall master plan for broadcasting in the public's interest, and would also dramatically reduce the subsequent re-working of established facilities to bring them into compliance.

Additionally, we would like to see MODULATION limits placed and enforced. Stations that modulate responsibly are considered at a disadvantage competitively. The Caymanian FM band is littered with overmodulated signals – contributing to poor received audio quality, more noticeable multipath issues, and an arguable increase in interference issues.

Finally – we whole-heartedly agree that additional policing and ongoing monitoring of spurious emissions is absolutely necessary, and will cooperate fully with responsible measures taken to bring our collective signals within limitations.

Respectfully submitted,

Michael Hagans,
Broadcast Engineering Consultant