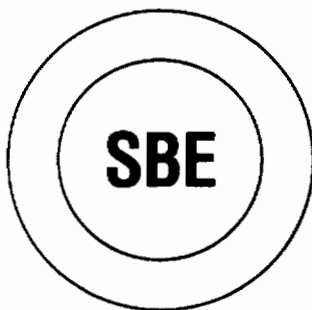




**SOCIETY OF BROADCAST ENGINEERS
FCC LIAISON COMMITTEE**

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March 14, 2006

Mr. Julius Knapp
Acting Chief, Office of Engineering & Technology
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Dear Mr. Knapp:

On behalf of the Society of Broadcast Engineers, Inc., the SBE FCC Liaison Committee submits this letter regarding the *Six-Month Progress Report to the Federal Communications Commission* ("Six-Month") filed by Clarity Broadcasting Systems, LLC ("Clarity") regarding its Experimental Radio Service License WD2XPK, FCC File Number 0046-EX-PL-2005. SBE notes that although this report is dated December 22, 2005, it was not filed with the Office of Engineering and Technology (OET) until January 4, 2006.

SBE disputes facts and claims in major portions of Clarity's Six-Month report, and wishes the WD2XPK record to reflect these contested issues. Specifically, SBE takes issue with the following facts and claims made in the Clarity Six-Month report:

1. **This Was Not a Testing Program; It Was a Demonstration Program.** SBE disputes Clarity's characterization of the Frazier Park, CA; North Salt Lake City, UT, and Ogden, UT, as "tests" of their "Trucker TV" system. To the contrary, these were show and no-tell events offered as a demonstration of the system. To qualify as "tests" Clarity should have included detailed engineering measurements of the undesired Trucker TV signal levels at all nearby electronic newsgathering receive only (ENG-RO) sites. Further, Clarity demonstrated a profound lack of cooperation with broadcasters at the Frazier Park. Clarity refused to allow broadcast station representatives (several of which were also SBE members) to even see their transmitting facilities or transmitting antenna, let alone make or witness power level measurements. SBE also must remind the Commission that the Frazier Park tests took place at a site 3.7 kilometers from the authorized coordinates, and at a site elevation of 1,170.4 meters (3,840 feet) AMSL instead of the higher and potentially more interference-prone 1,328.9 meters (4,360 feet) AMSL site elevation of the authorized site. Clarity then had the temerity to claim that the Frazier Park demonstration had less interference potential to the Frazier Mount ENG-RO site than had Clarity conducted the Frazier Park demonstration at the authorized height and coordinates. Had Clarity also put its transmitter in a copper screen shield room, they could have claimed even less interference potential. Accordingly, no conclusions based on commonly accepted

engineering principals should be drawn from the unauthorized Frazier Park demonstration.

2. **Clarity Did Not "Fully Coordinate" the Frazier Park Demonstration.** Contrary to the claim made in Clarity's Six-Month report, Clarity did not "fully coordinate" the Frazier Park demonstration with SBE. Instead, by a first class mail letter dated September 12, 2005, and received by SBE on September 15, Clarity unilaterally advised SBE that the demonstration would take place on September 28 and 29, 2005. A lead time of a mere two weeks for demonstration tests was hardly reasonable notice by Clarity had its intentions been honorable. When Clarity was asked to re-schedule that date by approximately a week, to better accommodate the schedules of SBE members who desired to witness the demonstration, Clarity flatly refused. The unilateral specification of a date for the WD2XPK Frazier Park demonstration, made with no prior consultation whatsoever with SBE, does not constitute "full coordination" by Clarity, or even good faith.

3. **Clarity Refused to Allow Verification of the Power Levels Used.** Even at the North Salt Lake City and Ogden demonstrations, where Clarity did allow broadcast representatives to see the demonstration transmitter, no data regarding the power levels that were actually used was ever made available to SBE representatives. Coupled with the lack of transmitter power measurements in the Clarity Six-Month report, neither SBE, nor OET, can draw meaningful engineering conclusions regarding the demonstrations.

4. **The Report Fails to Disclose the Massive Interference Caused To Trucker TV by ENG Operations.** Nowhere in the Six-Month report does Clarity disclose that when an ENG truck transmitted from the truck stop plaza location, it shut down the Trucker TV system. ENG trucks, originating news about Interstate 5 driving conditions (especially in the winter) often use this site. It did not matter which direction the ENG truck transmit antenna was aimed; all orientations of the ENG truck transmit antenna caused interference to the Trucker TV system. There can be no valid claim by Clarity that such interference is unlikely. Despite the assertion in Clarity's returned Cable Television Relay Service (CARS) applications that it would "live with this," SBE feels that Clarity should have disclosed this massive incompatibility in its Six-Month report.

5. **SBE Respectfully Requests That Its Informal Objection to the Clarity CARS applications be made part of the WD2XPK Record.** On November 22, 2005, SBE filed its Informal Objection to the March 10, 2005, Clarity CARS applications for Frazier Park, North Salt Lake City and Ogden. Only after this filing did SBE learn that those three CARS applications had been dismissed, on September 14, 2005. These applications by Clarity were apparently never assigned file numbers, nor put on public notice, nor was the dismissal placed on public notice, so SBE had no reasonable means to learn that the applications had already been dismissed. However, since the sole reason given for the dismissals was that the CARS applications were premature, pending a WD2XPK report, and since the dismissals were without prejudice to a re-filing by Clarity (which the Clarity Six-Month report now indicates it plans to do), SBE wants the WD2XPK record to reflect SBE's November 22 filing, and the facts we are offering in this instant letter.

Mr. Julius Knapp, page 3
March 14, 2006

6. Even if the Commission does deem the Clarity WD2XPK Six-Month report as an acceptable submission, SBE believes that the next step should be for Clarity to file a Petition for Rulemaking to amend the Part 78 CARS Rules to create such a new "Trucker TV" service, and not to re-file applications that ask for waivers that are so numerous and fundamental as to constitute the creation of a new radio service.

Sincerely,

/s/ Dane E. Ericksen

Dane E. Ericksen, P.E., CSRTE, 8VSB, CBNT
Chairman, SBE FCC Liaison Committee

Enclosure (copy of SBE's November 22, 2005, Informal Objection)

cc: Stephen D. Baruch, Esq. by e-mail: sbaruch@lsl-law.com

STAMP & RETURN

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)
)
Informal Objection Against)
Part 78 CARS Applications of)
Clarity Broadcasting Systems and)
)
Experimental Station WD2XPK)
)
for a "Trucker TV" Wireless Cable Service)
)

RECEIVED

NOV 22 2005

Federal Communications Commission
Office of Secretary

To: The Commission

**Informal Objection of the Society of Broadcast Engineers, Inc.
Against the Applications of Clarity Broadcasting Systems, LLC for "Trucker TV"**

The Society of Broadcast Engineers, Incorporated (SBE), the national association of broadcast engineers and technical communications professionals, with more than 5,000 members world wide, hereby respectfully submits its Informal Objection to three pending applications filed by Clarity Broadcasting Systems, LLC ("Clarity")¹ for new Community Antenna Relay Service (CARS) applications, and also to re-affirm its Informal Objection to the Clarity Experimental Radio Station License WD2XPK.²

**I. Applications Really Constitute a Petition for Rulemaking
for a New "Trucker TV" Wireless Cable Service**

1. The three Clarity CARS applications, filed on or about March 7, 2005, but not yet assigned file numbers nor placed on public notice, really constitute a petition for rulemaking for a new "Trucker TV" wireless cable radio service³, and must be treated as such. The Clarity CARS

¹ A wholly owned subsidiary of TON Services Inc., in turn owned by Flying J Inc., which operates truck stops throughout the United States.

² May 28, 2005, e-mail from Mr. David Otey, then the SBE Frequency Coordination Director, to Mr. James Burtle of the FCC.

³ Trucker TV, as proposed by Clarity, would be a system of omnidirectional base stations operating in the 2,025–2,110 MHz TV BAS band, using fourteen 6-MHz wide digitally modulated channels, or 84 MHz of bandwidth. Thus, Trucker TV base stations would occupy 98.8%, or essentially all, of the 2 GHz TV BAS band. Programming would be obtained from a DBS service, with a total of 70 programmed channels (i.e., each 6-MHz wide digital channel would have five embedded program streams). Sixty-five of the channels would simply repeat (re-broadcast) the DBS program content; five channels would be for origination programming of interest to truck drivers. The DBS quadrature phase shift keying (QPSK) digital modulation would be converted to 64 or 128 quadrature amplitude modulation (QAM) for the terrestrial re-broadcast. These Trucker TV base stations would be installed at up to 250 truck stops throughout the United States.

SBE Informal Objection to the Clarity Broadcasting Systems "Trucker TV" Applications

applications seek multiple waivers of the FCC Rules. In Exhibit A3, Clarity asks for waiver of Section 78.13 ("Eligibility"). Because Clarity is not a cable television system operator, a cable network entity, or the licensee of a Broadband Radio Service (BRS)⁴ station, it is therefore not eligible for a CARS license. SBE opposes any waiver of the CARS eligibility requirement.

2. In Exhibit A-4, Clarity asks for waiver of Section 78.36(c), which addresses frequency coordination requirements for CARS Pickup stations operating in the 2 GHz band. SBE opposes any waiver of this fundamental requirement.

3. At Page 27 of Exhibit 1 Clarity also seeks waiver of Section 78.18, Frequency Assignments. Section 78.18(a)(6)(ii) restricts CARS stations operating in the 2,025–2,110 MHz band to *mobile* operation, yet Clarity proposes *fixed base station* operation. SBE opposes any waiver allowing fixed CARS stations at 2 GHz.

4. Again at Page 27 of Exhibit 1, Clarity asks for waiver of Section 78.11, Permissible Service. Section 78.11(e) limits CARS Pickup stations to transmitting programming material and related communications necessary to the accomplishment of such transmission, from the scenes of events occurring in places other than a cable television studio or the studio of another eligible cable system, to the studio, headend, or transmitter of its associated cable television system or other eligible system, or to such other cable television or other eligible systems as are carrying the same program material. Clarity's applications do not fall into any of these defined uses. Instead, Clarity proposes a BRS/EBS-like, wireless cable use of 2,025–2,110 MHz frequencies. Terrestrial television broadcast service has specific allocations, and the Clarity applications are essentially proposing a re-allocation of spectrum through a simple waiver request. SBE opposes any waiver of Section 78.11(e) of the FCC Rules.

5. Finally, and again at Page 27 of Exhibit 1, Clarity asks for waiver of Section 78.103(e), which limits a 2 GHz CARS station to a maximum bandwidth of 18 MHz. SBE opposes a waiver that would grant a bandwidth of 84 MHz.

II. DBS Antennas Are Not Impractical On Trucks

6. SBE questions the Clarity assertion, in its Footnote 8 at Page 5 of its Exhibit 1, that direct broadcast satellite (DBS) dishes are impractical on trucks. A DBS antenna has a diameter of around 25 inches and weighs about 20 pounds. As Clarity notes, trucks can weigh up to 80,000

⁴ Section 78.13(d) still refers to BRS stations as MDS and MMDS stations, but MDS and MMDS stations were converted to BRS stations in the WT Docket 03-66 rulemaking, which became effective on January 16, 2005.

SBE Informal Objection to the Clarity Broadcasting Systems "Trucker TV" Applications

pounds. As shown by Figure 1, there are many DBS systems now available for mounting on trucks (and recreational vehicles). Clarity's claim that DBS dishes for trucks are impractical is plainly inaccurate. It then follows that Clarity's claim, at Pages 4 and 5 of its Exhibit 1, that truck drivers have "no regular and dependable access to television programming service," is also similarly inaccurate.

III. The BRS/EBS Band Is a Viable Alternative for Trucker TV

7. At Section 2 ("Frequency and Service Selection"), page 15, of its CARS applications Exhibit 1, Clarity claims that "the Commission's Rules do not contain any service and power description into which Clarity's video distribution product literally falls." Yet on the very next page Clarity acknowledges the recent re-farming of the Multipoint Distribution Service (MDS), the Multichannel Multipoint Distribution Service (MMDS), and Instructional Television Fixed Service (ITFS) bands to the Broadband Radio Service (BRS) and to the Educational Broadband Service (EBS) bands, in the recent WT Docket 03-66 rulemaking. This 2,495–2,690 MHz band ("2.6 GHz band") is set aside exactly for the sort of "wireless cable" application that Clarity envisions, but Clarity dismisses this available Part 27 spectrum as being too costly, and taking too long to negotiate with the various stakeholders in the band.

8. Clarity claims that the re-farmed 2.6 GHz band is available "only to educational or non-profit institutions, and Clarity is not such an institution" (Clarity's Exhibit 1, at Page 17). First, SBE wonders why Clarity is concerned about eligibility requirements when it is seeking a similarly requisite eligibility waiver for their requested Part 78 licenses. Clarity is just as ineligible for a Part 78 CARS license as it is for a Part 27 EBS license. Second, the 2.6 GHz band is shared with BRS, which has no educational or non-profit eligibility restrictions. Third, the Commission allows EBS licensees to enter into long-term airtime lease agreements for up to 80% of their bandwidth, if desired. Clarity attempts to dismiss this possibility in Footnote 21 to its Exhibit 1. SBE is not convinced that Clarity couldn't negotiate the necessary air time lease agreements. Fourth, if Trucker TV base stations really will be located in "rural areas," as claimed at Exhibit 1, Item 9, of the Clarity application, then the likelihood of having to negotiate airtime lease agreements with multiple EBS licensees is reduced, since it is the large metro areas that have the majority of stakeholder EBS licenses.

9. For these reasons, the Clarity CARS applications are defective, and must be returned or dismissed, as appropriate. However, and as will be shown, the Clarity applications also have technical flaws that further preclude their grant.

SBE Informal Objection to the Clarity Broadcasting Systems "Trucker TV" Applications

IV. Incorrect Geographic Coordinates for Frazier Park Flying J Truck Stop

10. As shown by Figure 2A, the geographic coordinates provided by Clarity for the Flying J truck stop at Frazier Park do not plot to the true truck stop location (which is located in Los Angeles County), but rather to a site in Ventura County, 3.73 km to the south of the Flying J truck stop. Figure 2B shows the true geographic coordinates of the Frazier Park Flying J truck stop, which was also the location of the September 28 and 29, 2005, WD2XPK experimental operation.

11. The geographic coordinates specified in the North Salt Lake City (North SLC) and Ogden Clarity CARS applications also appear to be in error, although not to the extent of the Frazier Park coordinate error. As shown by Figure 3A, the coordinates provided by Clarity for its North SLC truck stop appear to be 0.4 km south of the truck stop building. SBE's best estimate of the actual location of the N SLC truck stop building is shown in Figure 3B. As shown by Figure 4A, the coordinates provided by Clarity for its Ogden truck stop appear to be about 0.2 km east of the truck stop building. SBE's best estimate of the actual location of the Ogden truck stop building is shown in Figure 4B.

V. Frazier Part Proposed Facilities Failed To Consider the Frazier Mountain, and other, ENG-RO Sites

12. Having established the correct geographic coordinates and site elevation of the Frazier Park Flying J truck stop, a valid interference study can now be performed. Besides being based on incorrect coordinates, the frequency coordination study included in the Clarity CARS application for the Frazier Park truck stop is fatally flawed because it did not even consider the existence and locations of TV Broadcast Auxiliary Service (BAS) Electronic News Gathering receive-only (ENG-RO) sites. These ENG-RO sites are widely used by broadcasters to increase the likelihood that, no matter where an ENG truck must travel in the station's coverage area, it will be able to establish an ENG shot back to the parent station's studio. Accordingly, ENG-RO sites are sited atop tall mountains, on the roofs of tall buildings, and near the top of broadcast towers. A point-to-point Inter City Relay (ICR) microwave link is then typically used to relay the incoming ENG feed back to a TV station's studio.

13. These ENG-RO sites further use either an omnidirectional receiving antenna, or a remotely steerable receiving antenna that can be aimed in real time at the ENG truck location. Thus, unlike a fixed point-to-point TV BAS link, a party proposing to share the 2 GHz TV BAS band with

SBE Informal Objection to the Clarity Broadcasting Systems "Trucker TV" Applications

broadcasters cannot claim any allowance for receiving antenna azimuth pattern directivity for earlier-in-time and must-be-protected ENG-RO sites.⁵

14. The criteria for calculating interference protection to a digitally-modulated link is that of protecting the noise floor of the protected link. The noise floor of a typical digital receiver installed at a 2 GHz ENG-RO site is -93 dBm. If one applies the TSB-10F protection criteria of no more than a 1 dB degradation of the protected system's noise floor, this means that the receive carrier level (RCL) of an undesired signal from a Trucker TV base station cannot exceed -98.9 dBm. If one applies the even more stringent protection criteria of no more than a 0.5 dB degradation of the noise floor, as the Commission did in the October 21, 2004, ET Docket 00-258 Seventh Report & Order (allowing high-power Department of Defense (DoD) uplinks into the 2 GHz TV BAS band, at up to ten sites throughout the United States, plus an eleventh site in Guam), then the allowable RCL at the central receive site is reduced to just -102.1 dBm. Since the Clarity Exhibit 1 cites the DoD uplinks rulemaking as a precedent, it seems only fitting to SBE that the more rigorous 0.5 dB noise threshold protection be used.⁶

15. The frequency coordination studies submitted by Clarity in support of its CARS applications concluded that a search distance of 5 miles (8 km) would be sufficient for the "low power" operation proposed for Trucker TV base stations. As will be shown, Clarity grossly underestimates the necessary search distance.

16. The Clarity CARS applications propose an equivalent isotropic radiated power (EIRP) of 36.3 dBm (4.27 watts) per 6 MHz channel, with fourteen channels total. Since 2 GHz TV BAS channels are 12 MHz wide, this means that a Trucker TV base station should be modeled at 39.3

⁵ Nevertheless, Clarity attempts to do so, at Page 25 of its Exhibit 1, where it claims that it would be "virtually impossible" for a BAS unit (*i.e.*, ENG truck) to be dispatched to one of Clarity's sites. This is total poppycock, and only emphasizes Clarity's unfamiliarity with TV ENG operations. Rather than being "virtually impossible," the dispatching of ENG trucks to the Frazier Park Flying J truck stop typically occurs when snow closes the "Grapevine" portion of I5, between Bakersfield and Los Angeles. This might happen once or twice a year, and typically causes a large backup of truck traffic at the Flying J, and other, truck stops, near the closure point. This newsworthy event thus draws ENG trucks, to show the backlog of snow-dusted trucks, waiting for I5 to be re-opened. If a truck driver has to wait, doing so at a truck stop makes sense. Major accidents and smoke-causing brush fires have also closed the Grapevine; indeed, since the WD2XPK experimental license was issued, there have been no fewer than six closures of the Grapevine due to accidents and fires, and each incident drew multiple ENG trucks, and ENG helicopters, to the Frazier Park truck stop. Finally, occasional high-speed chases on the Grapevine cause the response of multiple ENG helicopters from the Los Angeles market. So the very scenario that Clarity claims would be "virtually impossible," that of having a TV BAS receiving antenna aimed directly at one of its proposed "Trucker TV" base stations, would in fact typically occur several times a year for this particular truck stop.

⁶ At Page 21 of Clarity's Exhibit 1. However, the Clarity citation fails to mention the still pending November 24, 2004, SBE Petition for Reconsideration of the ET Docket 00-258 Seventh R&O, so the decision to allow super high power DoD uplinks into the 2 GHz TV BAS band is not yet a done deal.

SBE Informal Objection to the Clarity Broadcasting Systems "Trucker TV" Applications

dBm EIRP (*i.e.*, two such channels, or 3.0 dB higher power). Clarity proposes using an omnidirectional base station antenna with 10 dBi gain, an elevation pattern half-power beam width (HPBW) of 8°, and 4° of electrical beam tilt (ebt). While the applications lack a manufacturer's make, model number, and pattern information for the transmitting antenna elevation pattern, SBE believes that a Kathrein Model OGB11-1900D omnidirectional base station antenna modeled with 4° of ebt would be a reasonable surrogate for estimating the elevation pattern of a Trucker TV base station. The Kathrein antenna has 11 dBi gain, an elevation pattern HPBW of 7°, and is vertically polarized, similarly to the proposed Trucker TV base station antenna. See the attached Figure 5.

17. As previously stated, ENG-RO sites are intentionally sited at high-elevation sites. Thus, it would not be unreasonable for the elevation angle from a Trucker TV base station antenna to an ENG-RO site to have a 5° elevation angle. As shown by Figure 4B, for a Trucker TV base station antenna with 4° of ebt, at an angle of 5° above the horizontal the relative field value of the elevation pattern is 0.2, or 14.0 dB down from the main beam EIRP. This would reduce the EIRP towards an ENG-RO site from 39.3 dBm to 25.3 dBm. If we assume that an ENG-RO site utilizes an antenna with 10 dBi gain and has 0.5 dB of line loss to the central receiver, what distance would a Trucker TV base station have to be from the ENG-RO site to ensure a RCL level of no greater than -102.1 dBm? The answer is 83.0 km, which gives a free space path loss (FSPL) of 136.9 dB at 2 GHz. Thus, the Clarity applications understate the required search distance by more than an order of magnitude. Further, for any more-distant ENG-RO sites, the elevation angle to the site may no longer be 5° or higher, and if so the interference threat of a Trucker TV base station antenna with 4° of ebt will be increased. Therefore, the above calculations are most likely *best case* for the amount of isolation the vertical pattern of a Trucker TV base station would have to an ENG-RO site.

18. As shown by the attached terrain profile from the Frazier Mountain ENG-RO site to the actual Frazier Park Flying J truck stop location (Figure 6), the path is partially obstructed. The predicted additional path loss at 2 GHz is 28.1 dB.⁷ When combined with an estimated 18.4 dB of elevation pattern suppression for the +8.2° look angle from a Trucker TV transmitting antenna at 24.9 m AGL at the Flying J truck stop to the Frazier Mountain ENG-RO receiving antenna mounted on top of a 37.8 meter AGL tower, thereby resulting in a receiving antenna height of 38.7 meters AGL/2,478.5 meters AMSL, the calculated RCL is -115.1 dBm, or 13 dB below the -102.1 dBm RCL necessary to ensure no more than a 0.5 dB degradation to the noise floor of the digital

⁷ Based on the Terrain Integrated Rough Earth Model (TIREM).

SBE Informal Objection to the Clarity Broadcasting Systems "Trucker TV" Applications

ENG receiver.⁸ However, this case appears to be happenstance and not due to any knowing design by Clarity since their original geographic coordinates were defective. Additionally, there are other ENG-RO receive sites within 83 km, and they may not all have terrain obstruction to the Frazier Park Flying J truck stop. Thus interference calculations to those additional ENG-RO sites need to be made.

19. Because of the partially obstructed path from the Flying J truck stop to the Frazier Mountain ENG-RO antenna, ENG crews covering backed-up trucks (or other news events) at the Flying J truck stop can only establish a link to the Frazier Mountain ENG-RO site by operating their masts at full height and their transmitters at full power. The September 28/29, 2005, WD2XPK tests showed that when an ENG truck transmitted, it caused severe interference to the Trucker TV system. This is not surprising given that the WD2XPK experimental license authorized a maximum EIRP of 42.1 dBm per channel 6 MHz channel,⁹ or 45.1 dBm per 12 MHz channel, whereas an ENG truck operating at full power would typically have an EIRP of 50 to 60 dBm (the maximum allowable EIRP for mobile 2 GHz TV BAS stations is 65 dBm).¹⁰ Further, the Frazier Park tests were reportedly done at a far lower power level, apparently on the order of 100 mW EIRP for all 14 channels, or just 7.1 mW (8.5 dBm) per channel. The Clarity representative would not permit the viewing of the experimental transmitter, let alone power measurements. This lack of cooperation greatly reduced the benefits of those tests, and, in SBE's view, violated Condition 6 of the WD2XPK experimental license ("SBE may observe the performance of the system in cooperation with the licensee.") Although Clarity personnel were more cooperative with SBE/broadcaster representatives at the North SLC and Ogden tests, allowing the test transmitter to be seen, no power measurements were taken. Thus, a critical aspect of the WD2XPK tests is still unknown with certainty to SBE.

20. From the North SLC and Ogden tests, where Clarity was more forthcoming, SBE representatives heard verbal reports that the actual TPO per channel for those tests was just 50 mW total, or 3.6 mW (5.5 dBm) per channel, and that the transmission line losses were 2.6 dB, and finally that the transmitting antenna gain was 10 dBi. If so, this meant an EIRP of 29.0 dBm per channel, or 13.1 dB less power than authorized by the WD2XPK experimental license. A 13 dB uncertainty in the power level of an experimental station, and one that had a condition that SBE was entitled to "observe" the tests, is totally unacceptable. Should any future tests be authorized, SBE

⁸ This is consistent to reports obtained from NBC/Telemundo, the operator of the Frazier Peak ENG-RO site, that on-off tests of the Frazier Park Flying J truck stop transmitter did not show any detectable change in the noise floor of the ENG receiver.

⁹ SBE notes that this is 5.8 dB more power than requested by Clarity in its CARS applications.

¹⁰ Section 74.636(a) of the FCC Rules.

SBE Informal Objection to the Clarity Broadcasting Systems "Trucker TV" Applications

asks that the "observation" clause be expanded to explicitly state that SBE shall have the right to make power measurements and observe make and model of the transmitter being used, the length and type of transmission line, the make and model of the transmitting antenna, and the value of any in-line attenuator pads that might be in use. Otherwise the tests are not valid, and of no benefit to SBE or to the Commission.

VI. ENG Relay Trucks Not Considered

21. Another fundamental shortcoming in the Clarity frequency coordination studies was the failure to consider ENG relay or repeater ("ENG-R") trucks. An ENG-R truck is equipped to receive an incoming 2 GHz ENG feed on one 2 GHz TV BAS channel, and then relay that feed to another site, using either a different 2 GHz TV BAS channel, or a 7 or 13 GHz TV BAS channel. For example, an ENG-R truck might be parked on a nearby hill or mountain, and act as an itinerant, or portable, ENG-RO site. An ENG-R truck is simply another tool that TV stations use to get a program feed from a news or sports venue back to the TV studio; sometimes a Satellite ENG truck (SNG) truck¹¹ is the most effective tool, sometimes an ENG-R truck is the most effective tool, and sometimes a permanent, fixed, ENG-RO site, with a dedicated ICR feed back to a TV station's studio, is the best solution. And, sometimes, all three are used, simultaneously.

22. The point is, then, that even if Clarity locates all ENG-RO sites within 80 or so kilometers of a Trucker TV base station, and could demonstrate protection of the noise floor of the receivers at those fixed sites, this still wouldn't guarantee that interference to the receiving antenna of an ENG-R truck wouldn't be caused, because like and ENG truck or other ENG platform, one never knows in advance where such a mobile TV Pickup station will need to be located in order to cover a breaking news story, or other event.

23. Indeed, for the WD2XPK experimental operation at the Frazier Park site, it was an ENG-R truck that was used to ensure a good "look" at the Trucker TV signal would be obtained, since local broadcasters were aware of the margin path from the Frazier Park Flying J truck stop to the Frazier Mountain ENG-RO site.

VII. Proposed Secondary Status for Trucker TV Is Not Credible

24. Clarity indicates that, if its CARS applications are granted, it will accept any interference from TV BAS (*i.e.*, ENG) operations, and will ensure that no interference to such operations is caused, including, if necessary, shutting down an operating Trucker TV system. SBE has serious

¹¹ In some cases, SNG trucks are also used as an itinerant ENG-RO site.

SBE Informal Objection to the Clarity Broadcasting Systems "Trucker TV" Applications

reservations about both proposals. First, if any ENG crew were to visit a truck plaza where Trucker TV was in operation, because of a news event at the truck plaza, and was to cause the shut down of the system, irate truckers might create their own "news event" when they discover the source of the interference. This could especially be the case if, like occasionally happens at the Frazier Park Flying J truck stop, 15 is temporarily closed due to weather, a major accident, or brush fires, and hundreds of truckers are impatiently waiting for this major arterial to be re-opened. But, in the mean time, they are watching their Trucker TV. Second, SBE believes that if commercially successful (which SBE doubts, given the availability of DBS services), Clarity and its subscribers would quickly forget that its system was authorized on a secondary, must-accept-interference basis. Third, even if Clarity remembered the deal it had made, others¹² asking the Commission for "me too" authorizations¹³ for Trucker TV would probably not be aware of this critical limitation.

25. Equally dubious is Clarity's claim that it would shut down a Trucker TV station in the event of interference to TV BAS operations. First, a broadcaster receiving interference would have to trace the problem to a Clarity Trucker TV site. Doing so could be difficult and time consuming, and would typically require a spectrum analyzer, to allow characterizing the nature of the interfering signal. It would not be practical for broadcasters to install spectrum analyzers in all ENG platforms, and train ENG crews to use such a sophisticated instrument.¹⁴ But, even assuming that interference could be tracked to a Trucker TV base station, it would then be necessary to identify a suitable manager for the truck plaza, and whether this person could be convinced that the Trucker TV station was the source of the interference. Even if so convinced, would the local truck stop person have authority to make a shut-down decision? SBE envisions the shut-down-upon-interference promise being easily subverted simply by the manager claiming he doesn't know how to shut down the system, and later that the complaining broadcaster had not adequately "demonstrated" or "proven" that interference was being caused by that specific system. The bottom line is that Trucker TV base stations would become a stealth source of interference to ENG operations.

26. As documented in SBE comments to the IB Docket 02-364 (MSS Systems at 1.6/2.4 GHz), WT Docket 02-55 (Nextel 2 GHz/SMR), WT Docket 04-356 (Service Rules for 2 GHz AWS

¹² Clarity's Exhibit 1 indicates that Trucker TV might also be used at RV parks.

¹³ SBE expects that if Trucker TV CARS authorizations were granted to Clarity for use at the 165 truck stops its parent company, Flying J, Inc., operates, that Flying J's truck stop competitors would soon be insisting on similar Trucker TV authorizations for their truck stops. RV parks would also presumably get in line for Trucker TV grants.

¹⁴ If so installed, the directional dish antenna used by an ENG truck could be used as a receiving antenna, to determine the direction of an interfering signal. Of course, the truck's ENG transmitter would be turned off during such triangulation.

SBE Informal Objection to the Clarity Broadcasting Systems "Trucker TV" Applications

stations), ET Docket 00-258 (3G, or AWS, stations, and DoD Uplinks at 2 GHz), ET Docket 95-18 (MSS), and ET Docket 03-237 (Noise Temperature Criteria for Part 15 Devices) rulemakings, 2,400–2,483.5 MHz Part 15 IEEE 802.11x "Wi-fi" devices continue to cause chronic interference to TV BAS operations on Channels A8 (2,450–2,467 MHz) and A9 (2,467–2,483.5 MHz), even though, in theory, Part 15 devices are not allowed to cause interference to a licensed service (*i.e.*, Part 74, Subpart F, TV Pickup stations). If Trucker TV base stations get built throughout the United States, SBE has no doubt that interference to TV BAS operations on those very same frequencies (2,025–2,110 MHz) will be caused. SBE must again point out the difference between *frequency sharing* and *frequency re-use*: SBE has no objection to any credible proposal that will allow frequency re-use; for example, DoD uplinks, if retrofitted with "pie-tin" shrouds that improve the uplink dish side lobe suppression from -60 dBc to -90 dBc or better, thus allowing frequency re-use with 2 GHz TV BAS operations rather than frequency sharing. But Trucker TV base stations, with their omnidirectional transmitting antennas, will be unlikely to ever achieve frequency re-use with co-channel TV ENG operations.

VIII. Requested Power Level Is Excessive

27. SBE also questions the requested power level of 36.3 dBm EIRP per 6-MHz wide channel, or 39.3 dBm EIRP per 12-MHz wide ENG channel. As shown by the attached terrain sensitive coverage maps for the Frazier Park Trucker TV base station, Figures 7A and 7B, even after modeling the 4° of electrical down tilt of the elevation pattern gives a coverage footprint far in excess of the 0.7 km radius Clarity states would be needed.¹⁵ Figure 7A shows the coverage of the of the Frazier Park Trucker TV base station, ranging in 10 dB steps from ≥40 dBu to <0 dBu. The field strength that would result in a -102.1 dBm RCL into an ENG-RO site with a 10 dBi gain antenna and 0.5 dB of line loss is 4.1 dBu. Figure 7A is based on the combined EIRP of *two* of the proposed 6-MHz wide channels (since TV BAS channels are 12 MHz wide), or 39.3 dBm. Figure 7B shows the footprint of the 53.2 dBu service contour, which is the signal strength corresponding to the RCL of -59.6 dBm using a 3 dBi gain receiving antenna, with no line loss. According to the Clarity application, this RCL will result in a 10 dB fade margin, the minimum needed for their system to work. Figure 7B is based on the EIRP of a single Trucker TV channel, or 36.3 dBm. Figure 7A shows that, contrary to Clarity's claim, the signal level does not diminish to "negligible levels" beyond 0.7 km from the proposed base station. Figure 7B shows that the

¹⁵ Clarity Exhibit 1, at Page 14.

SBE Informal Objection to the Clarity Broadcasting Systems "Trucker TV" Applications

signal level that Clarity indicates will provide a 10 dB fade margin is far greater than both 0.7 km or 1 km.¹⁶

IX. NASA Objection

28. SBE notes that on April 18, 2005, the National Aeronautics and Space Administration (NASA) sent a letter to the Interdepartment Radio Advisory Committee (IRAC) of the National Telecommunications and Information Administration (NTIA)¹⁷ regarding the Clarity experimental application, and the three Clarity CARS applications, noting that NASA shares (successfully) the 2,025–2,110 MHz band with broadcasters.¹⁸ The NASA letter expressed concern about "potentially very serious RFI issues," and asked that NTIA contact the FCC and request that an experimental license not be issued until a "full and complete systems analysis is conducted on potential RFI." Of course, grant of permanent CARS licenses for Trucker TV stations would be even more inappropriate.

29. SBE does not know if NTIA contacted the FCC, or if any electromagnetic compatibility analysis by IRAC was undertaken prior to the granting of the WD2XPK experimental license. But in any event SBE believes that NASA and IRAC concurrence must be obtained before any permanent authority for Trucker TV is granted.

X. Trucker TV Local Origination Programming

30. Clarity proposes local origination for five of its 70 video programs, and suggests that local origination programming would provide value-added program content, different from what a trucker could obtain now using a DBS service. But this argument is diluted as a result of the November 10, 2005, EB Docket 04-296 Report & Order and Further Notice of Proposed Rulemaking. That Order extends EAS requirements to DBS, satellite radio, and digital FM broadcast In Band On Channel (IBOC) signals. It is also logical to conclude the Order further extends EAS relay requirements to over-the-air systems such as that proposed by Clarity. And, of course, truck drivers

¹⁶ SBE notes, however, that "Signal Calculations" exhibit to the Clarity CARS application bases its FSPL calculation on a distance of 1 km, not 0.7 km. SBE will use the 1-km distance for its calculations.

¹⁷ Letter from Mr. David P. Struba, NASA IRAC Representative, to Mr. Karl Nebbia, Chairman, IRAC, NTIA.

¹⁸ NASA uses 2,025–2,110 MHz for space research. This sharing of spectrum with broadcasters has been successful because NASA uses 2 GHz terrestrially only for Earth-to-space communications, and only from a few remote sites, using large uplink dishes. Thus, this frequency sharing has proven compatible with how broadcasters use those same frequencies, and is in stark contrast to the Trucker TV proposal, which could result in hundreds of base stations in non-remote areas. It is also in stark contrast with the DoD uplinks decision, which could eventually allow very high power uplinks in areas where 2 GHz ENG is heavily used by broadcasters (*e.g.*, Los Angeles, San Francisco, Denver, Boston, Albuquerque and Florida).

SBE Informal Objection to the Clarity Broadcasting Systems "Trucker TV" Applications

can still avail themselves to AM and analog FM radio broadcasts for the latest in local weather and road conditions.

XI. Summary

31. The three Clarity CARS applications are fundamentally flawed and inappropriate, and must be returned forthwith. This SBE filing documents that the frequency coordination study submitted with the Frazier Park application was misguided and inadequate; SBE suspects similar serious shortcomings in the North SLC and Ogden frequency coordination studies, but sees no reason to do Clarity's engineering for them, as this filing partially does for the Frazier Park CARS application.¹⁹ And even if Clarity could demonstrate the protection of ENG-RO sites, it would be impossible to demonstrate protection of ENG-R trucks, since like ENG trucks, they are mobile and itinerant in nature. Before re-applying, Clarity must first petition the Commission for a rulemaking to establish a Trucker TV wireless cable service. Then, and only then, would applications for permanent stations be appropriate. If the Commission decides that a petition for rulemaking for a Trucker TV wireless cable service is needed, that is, that the recently created BRS/EBS band at 2.6 GHz is not practical for Trucker TV, or that DBS and satellite radio services are not meeting the needs of truck drivers, then a rulemaking would allow all interested parties to fully discuss whether the critical 2.025–2.110 MHz TV BAS band is the proper home for such a new service. If so, then realistic protection requirements must be written into those new rules, and the secondary status of Trucker TV must also be codified. But, even if a rulemaking case could be made for the need of a Trucker TV service, SBE has to wonder if some other band, such as a "reverse direction," low-power use of the 17.3–17.8 GHz DBS uplink band, might be a more appropriate home for such a service.

¹⁹ SBE relies mostly on unpaid, volunteer efforts by its members to undertake the engineering studies to prepare filings such as this one, in defense of BAS spectrum, and for the good of the entire broadcasting industry. In contrast, Clarity/Flying J. Inc., with its \$5.6 billion in sales and being the 35th largest private U.S. company (per Clarity's Exhibit 1, at Page 5) should have no problem commissioning interference studies that properly take into account the existence of ENG-RO sites. SBE notes that this task would have been considerably simplified had the Commission adopted SBE's ET Docket 01-75 request to modify the Universal Licensing System (ULS) to allow TV Pickup licensees to document the locations and heights of ENG-RO sites associated with a particular TV Pickup station. Having been unsuccessful in that attempt (not on its merits, but because the proposal was strangely deemed as "outside the scope" of the ET 01-75 rulemaking), on September 6, 2005, SBE filing a Petition for Rulemaking to so change FCC Form 601 and the ULS. That Petition for Rulemaking remains pending, with no RM number yet assigned.

**SBE Informal Objection to the Clarity Broadcasting Systems
"Trucker TV" Applications**

List of Figures

32. The following figures or exhibits have been prepared as a part of this Informal Objection against the pending Part 78 CARS application of Clarity Broadcasting Systems, LLC, and further Informal Objection against the WD2XPK experimental license for Trucker TV stations:

1. Examples of truck-mountable DBS antennas
2. Of-record and actual Frasier Park, CA, truck stop locations
3. Of-record and actual North Salt Lake City, UT, truck stop locations
4. Of-record and actual Ogden, UT, truck stop locations
5. Surrogate Kathrein OGB11-1900D Trucker TV base station antenna
6. Terrain profile from Frasier Mountain ENG-RO site to the actual Frazier Park Flying J truck stop
7. Maps showing the terrain-sensitive coverage for the proposed Frazier Park Trucker TV base station.

Respectfully submitted,

Society of Broadcast Engineers, Inc.

Chriss Scherer, CSRE, CBNT
SBE President

Dane E. Ericksen, P.E., CSRTE, CBNT
Chairman, SBE FCC Liaison Committee

Christopher D. Imlay, Esq.
General Counsel

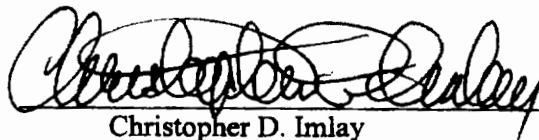
November 22, 2005

Booth, Freret, Imlay & Tepper
14356 Cape May Road
Silver Spring, Maryland 20904
301/384-5525

CERTIFICATE OF SERVICE

I, Christopher D. Imlay, do hereby certify that I caused to be mailed, via first class U.S. Mail, postage prepaid, a copy of the foregoing INFORMAL OBJECTION OF THE SOCIETY OF BROADCAST ENGINEERS, INC. AGAINST THE APPLICATIONS OF CLARITY BROADCASTING SYSTEMS, LLC FOR "TRUCKER TV", to the following, this 22nd day of November, 2005.

Howard A. Topel, Esquire
Leventhal, Senter & Lerman PLLC
2000 K Street, N.W., Suite 600
Washington, D.C. 20006-1809



Christopher D. Imlay

SBE Informal Objection to the Clarity Broadcasting Systems "Trucker TV" Applications

Examples of Truck-Mountable DBS Antennas

Technology for Truck Drivers

Truck Driving Jobs | → Drivers | → Re

A Revolution In Driver Recruiting



▶ advertising ▶ contact ▶ about



No Cost Family Health
for Drivers and De

Drivers

- ▶ Driver Login
- ▶ Job Application
- ▶ Company Listings
- ▶ Local / Reg. Jobs
- ▶ Owner Operators
- ▶ School Graduates
- ▶ Driver Training
- ▶ Driver FAQ

Recruiters

- ▶ Member Login
- ▶ Join TruckFLIX
- ▶ Member Benefits
- ▶ TFX App Search
- ▶ Recruiter FAQ

- ▶ TFX Podcasts
- ▶ Video Vault
- ▶ Trucker Buddy Blog
- ▶ Trucking Forum
- ▶ Tech for Drivers
- ▶ Resources



new truck

Truck Driver Technology Satellite TV

Satellite TV Trucking Technology



Sat Com Passport
Category: Satellite TV
[Visit Website](#)

The First Portable Flat Antenna for DBS-TV Viewing Anytime, Anywhere

The SatCom PASSPort™ Mini Plus is a unique flat-panel satellite antenna system designed for portable DBS-TV broadcast viewing. Compact and lightweight, it is extraordinarily easy to transport and use - absolutely no assembly is required. The system is compatible with all current mini-dish DBS receivers, and the sleek, unobtrusive design blends harmoniously into any environment. The Mini Plus is ideal for people who want to enjoy satellite television anywhere - trucking, camping, boating, or simply relaxing at home. Compatible with all DIRECTV™ and DishNetwork™ receivers

[< Back to Truck Driver Technology](#)

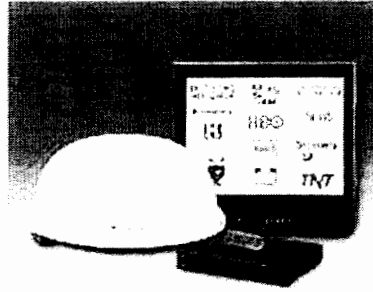


SOCIETY OF BROADCAST ENGINEERS, INC.
Indianapolis, Indiana

051029.1
Figure 1A

SBE Informal Objection to the Clarity Broadcasting Systems "Trucker TV" Applications

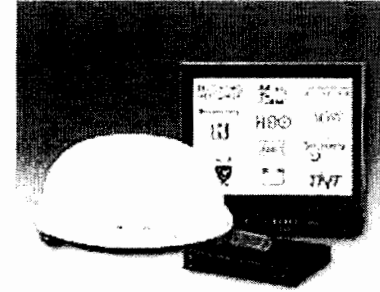
Examples of Truck-Mountable DBS Antennas



TRACVISION S2

The new, economical satellite TV antenna system for stationary use throughout North America

The affordable and completely self-contained TracVision S2 is the most reliable stationary satellite TV system for people on the go. Using innovative new technology and an easy-to-install design, TracVision S2 is ideal for RVs, fifth wheels, trucks, and motorcoaches. The system automatically acquires DIRECTV®, DISH Network™, and ExpressVu satellite signals with just a flip of a switch. And since all components are housed in the rugged, impact-resistant dome, the TracVision S2 is easy to install and maintain. Wherever you're parked in the continental United States or Canada, TracVision S2 will bring you hundreds of channels of uninterrupted, crystal-clear digital entertainment with CD-quality sound.



TRACVISION L2

The new in-motion satellite TV antenna system for use on North American roads

The completely self-contained TracVision L2 is the most affordable and reliable in-motion satellite TV system for people on the go. Using innovative new technology and an easy-to-install design, TracVision L2 is ideal for RVs, trucks, and motorcoaches. The system automatically acquires and tracks DIRECTV®, DISH Network™, and ExpressVu satellite signals no matter where you are in the continental United States and Canada. And since all components are housed in the rugged, impact-resistant dome, the TracVision L2 is easy to install and maintain. Whether you're parked for the night or cruising down the highway, TracVision L2 will bring you hundreds of channels of uninterrupted, crystal-clear digital entertainment with CD-quality sound. With TracVision L2, getting there is half the fun!



**SBE Informal Objection to the Clarity Broadcasting Systems
"Trucker TV" Applications**

Examples of Truck-Mountable DBS Antennas

On-the-Go

Get the most from your DBS system with our line of versatile dish mounts and on-the-go systems. Don't miss out on your DBS programming while you are in your RV. We make it easy to take your system along with any number of mobile satellite systems and mounts.

Winegard

Winegard In-Motion MV-4002

\$2,099.95

1500091

Watch Satellite TV cruising down the road!

Order

Checkout

Winegard

Winegard In-Place MV-3500

\$1,149.95

1500092

Mobile satellite system travel made easy!

Order

Checkout

Roadtrip

Roadtrip LP1000 Satellite Antenna

\$1,699.95

1500093

Watch satellite TV cruising down the road!

Order

Checkout

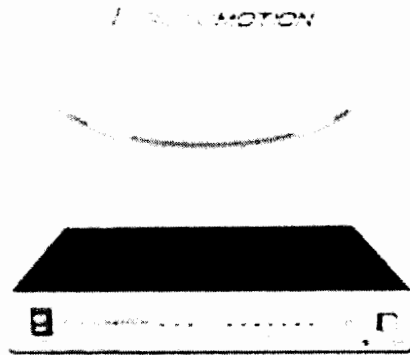


SBE Informal Objection to the Clarity Broadcasting Systems "Trucker TV" Applications

Examples of Truck-Mountable DBS Antennas

T2 Automotion

Tracks Satellite In Motion



Freedom

DirecTV or Dish Network Satellite TV

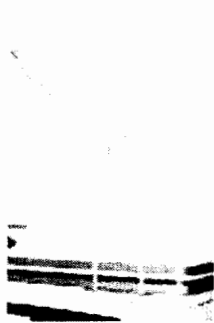


SOCIETY OF BROADCAST ENGINEERS, INC.
Indianapolis, Indiana

051029.1
Figure 1D

SBE Informal Objection to the Clarity Broadcasting Systems "Trucker TV" Applications

Examples of Truck-Mountable DBS Antennas



Ranger Sidekick Portable Mount

\$89.95

6034005

Convenient enough to take anywhere!

Order

Checkout



KTI Non-Penetrating Roof Mount

\$59.95

6012005

This mount means no holes in the roof!

Order

Checkout



PM-2000 Fold-Up DBS Antenna

\$99.95

6036002

Simple to set up and store. The PM-2000 DBS antenna sets up in a flash. Plus, it's fully portable. When you're ready to move it, simply remove the LNB, pull it up on the top, and fold it flat. LNB and tripod included. Compatible with DISH Network[®] and DirecTV[®] receivers.

Order

Checkout



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051029.1
Figure 1E

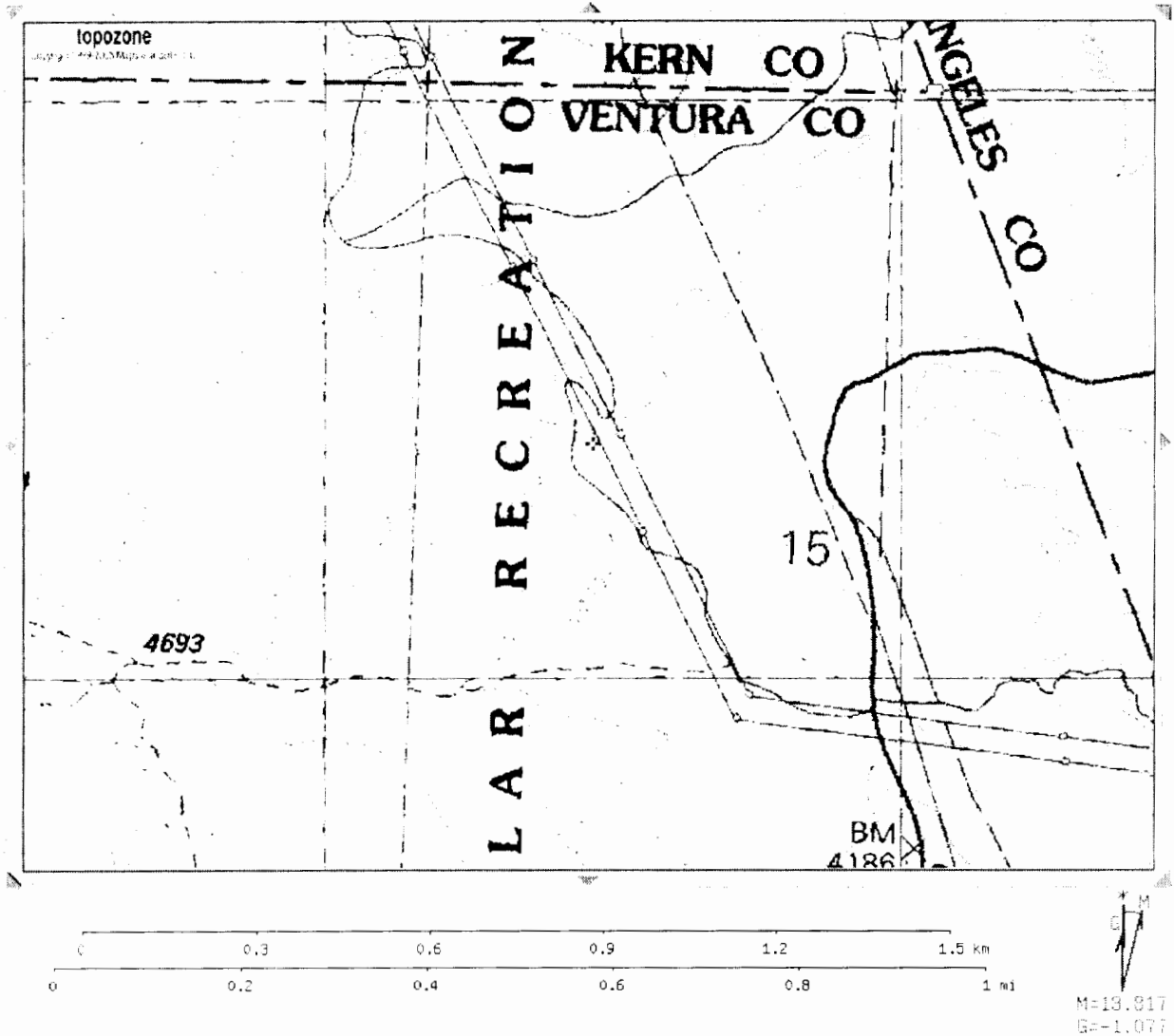
**SBE Informal Objection to the Clarity Broadcasting Systems
"Trucker TV" Applications**

Frazier Park Truck Stop Coordinates of Record (24K Topographic Map)

34° 46' 59" N, 118° 53' 12" W (WGS84/NAD83)

USGS **FRAZIER MOUNTAIN** Quad

View *TopoZone Pro* aerial photos, shaded relief, street maps, interactive coordinate display, and elevation data



The WD2XPK experimental application, and the Frazier Park Clarity CARS application, specified the geographic coordinates of the Flying J truck stop near Frazier Park, California, as 36° 46' 59" N, 118° 53' 12" W, NAD83, but, as shown, these coordinates do not plot to the Flying J truck stop. Indeed, they are not even in the same county as the Flying J truck stop.



SOCIETY OF BROADCAST ENGINEERS, INC.
Indianapolis, Indiana

051029.1
Figure 2A

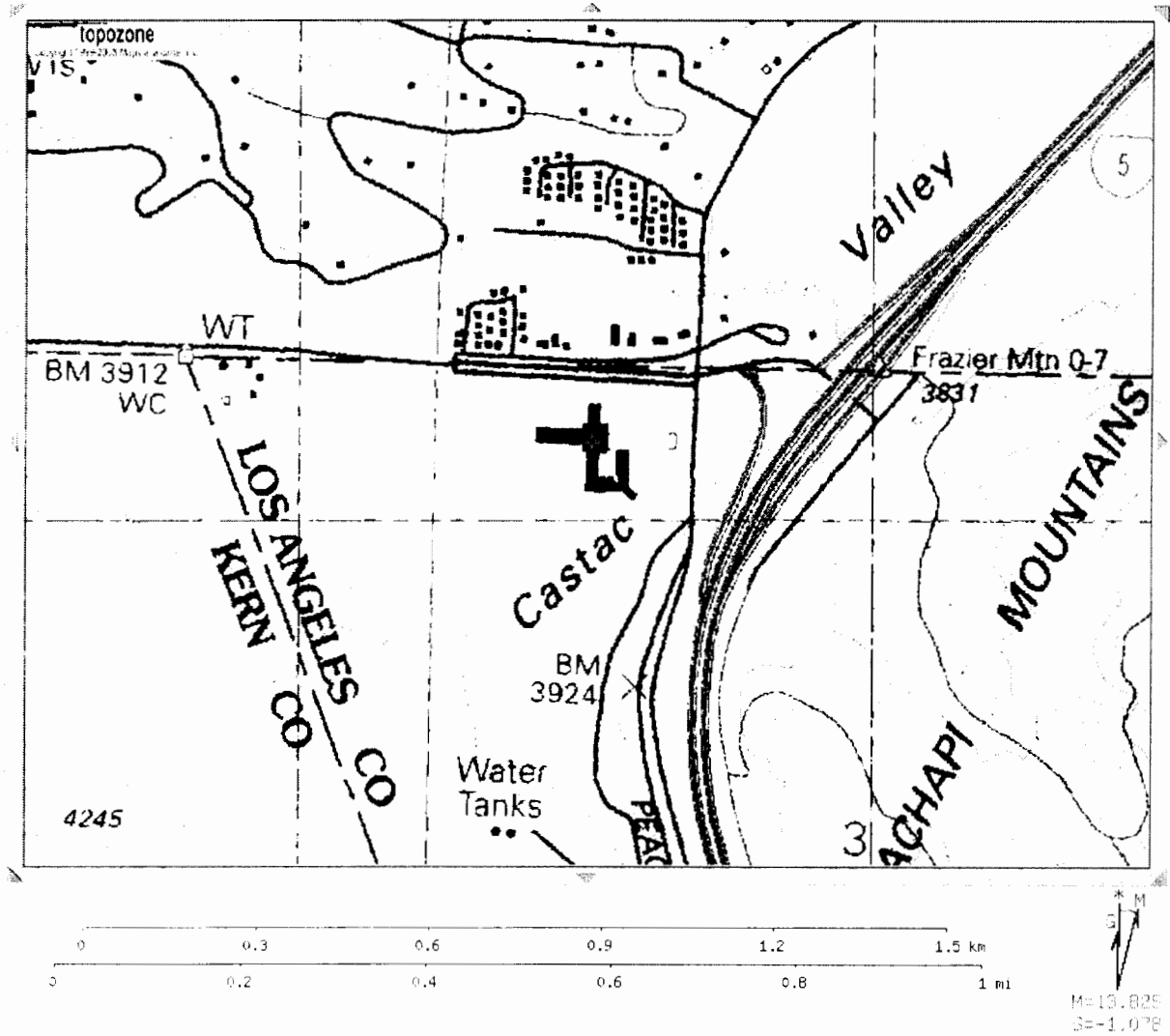
SBE Informal Objection to the Clarity Broadcasting Systems "Trucker TV" Applications

True Frazier Park Truck Stop Location (24K Topographic Map)

34° 49' 00" N, 118° 53' 13" W (WGS84/NAD83)

USGS FRAZIER MOUNTAIN Quad

View TopoZone: Panoramic photos, shaded relief, street maps, interactive coordinate display, and elevation data



Actual location of the WD2XPK test transmitter, on the Frazier Park Flying J truck stop building, 4810 Frazier Mountain Park Road, Frazier Park, Los Angeles County, California 93243. The true geographic coordinates are 34° 49' 00" N, 118° 53' 13" W, NAD83. The true site elevation is 1,170.4 m (3,840 feet) AMSL, and not the 1,329 m (4,360 feet) AMSL claimed in the CARS application (however, 1,329 m AMSL does correspond to the site elevation of the incorrect coordinates provided in the Frazier Park CARS application).

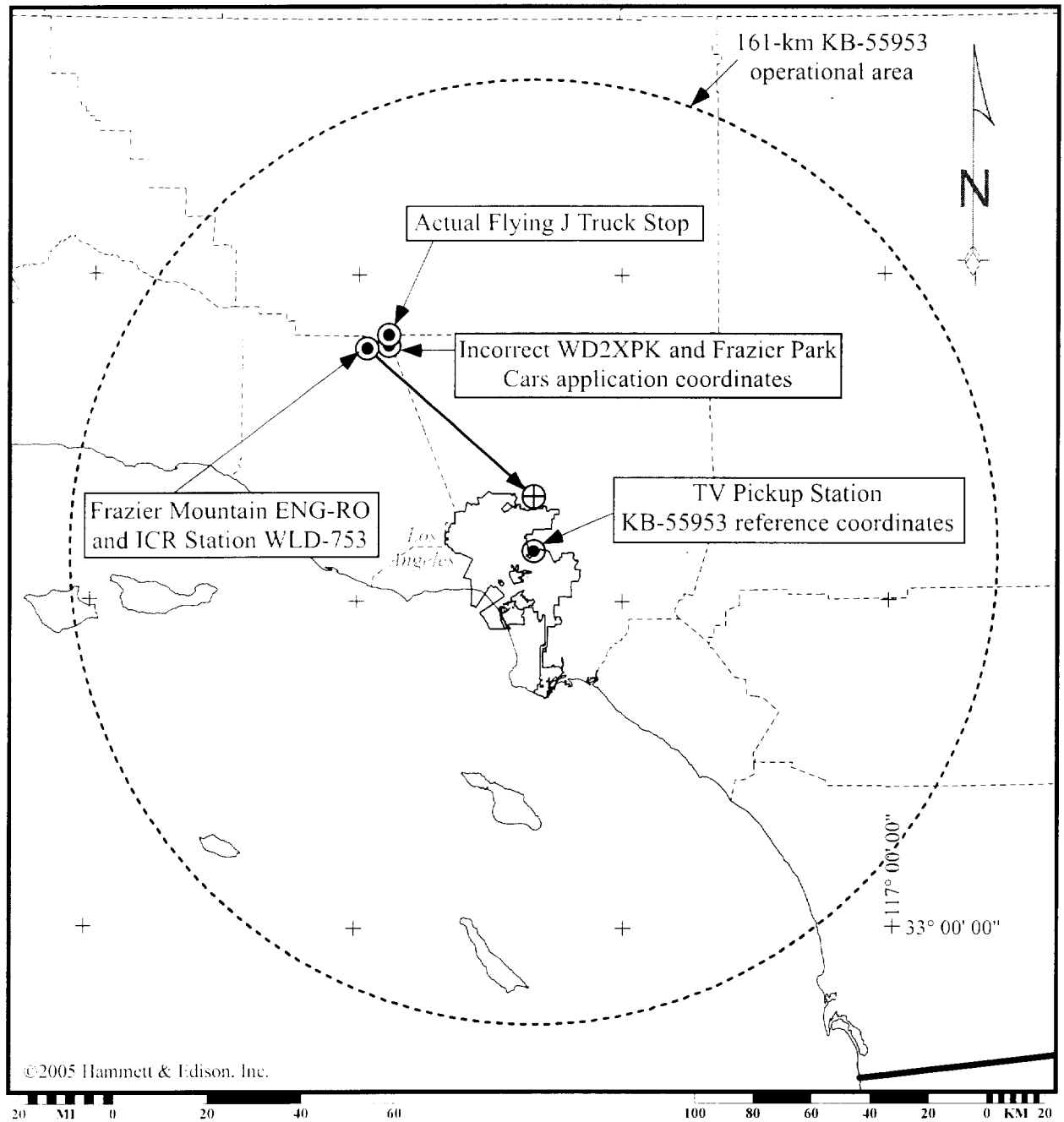


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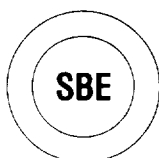
051029.1
Figure 2B

**SBE Informal Objection to the Clarity Broadcasting Systems
"Trucker TV" Applications**

Frazier Park Test Site Map (Big)



Albers equal area map projection. Map data taken from Sectional Aeronautical Charts, published by the National Ocean Survey. Geographic coordinate marks shown at 60-minute increments. City limits shown taken from 2000 U.S. Census Bureau TIGER data.

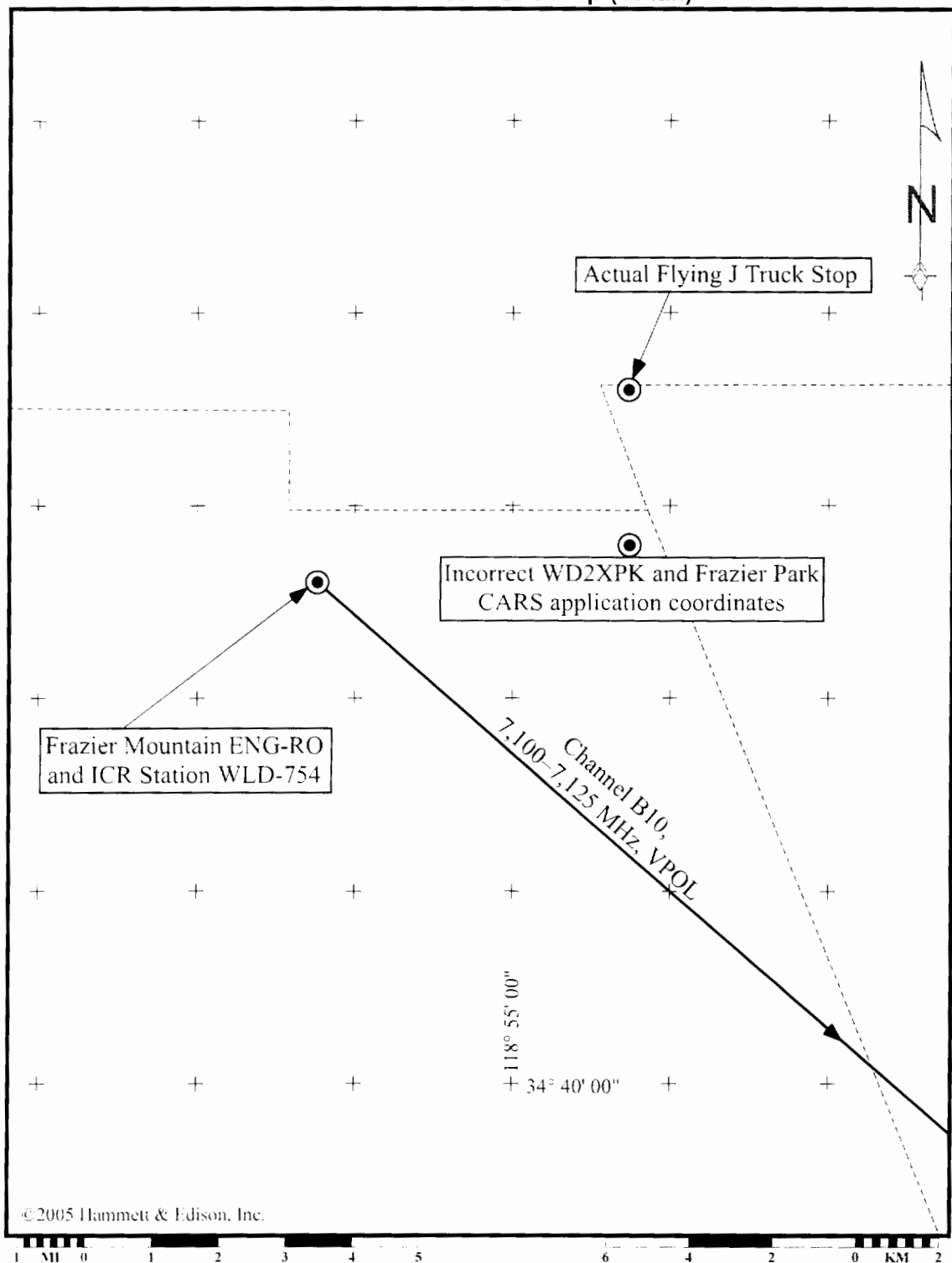


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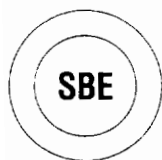
051029.1
Figure 2C

**SBE Informal Objection to the Clarity Broadcasting Systems
"Trucker TV" Applications**

Frazier Park Test Site Map (Small)



Transverse Mercator map projection. Map data taken from Sectional Aeronautical Charts, published by the National Ocean Survey. Geographic coordinate marks shown at 2-minute increments. City limits shown taken from 2000 U.S. Census Bureau TIGER data.



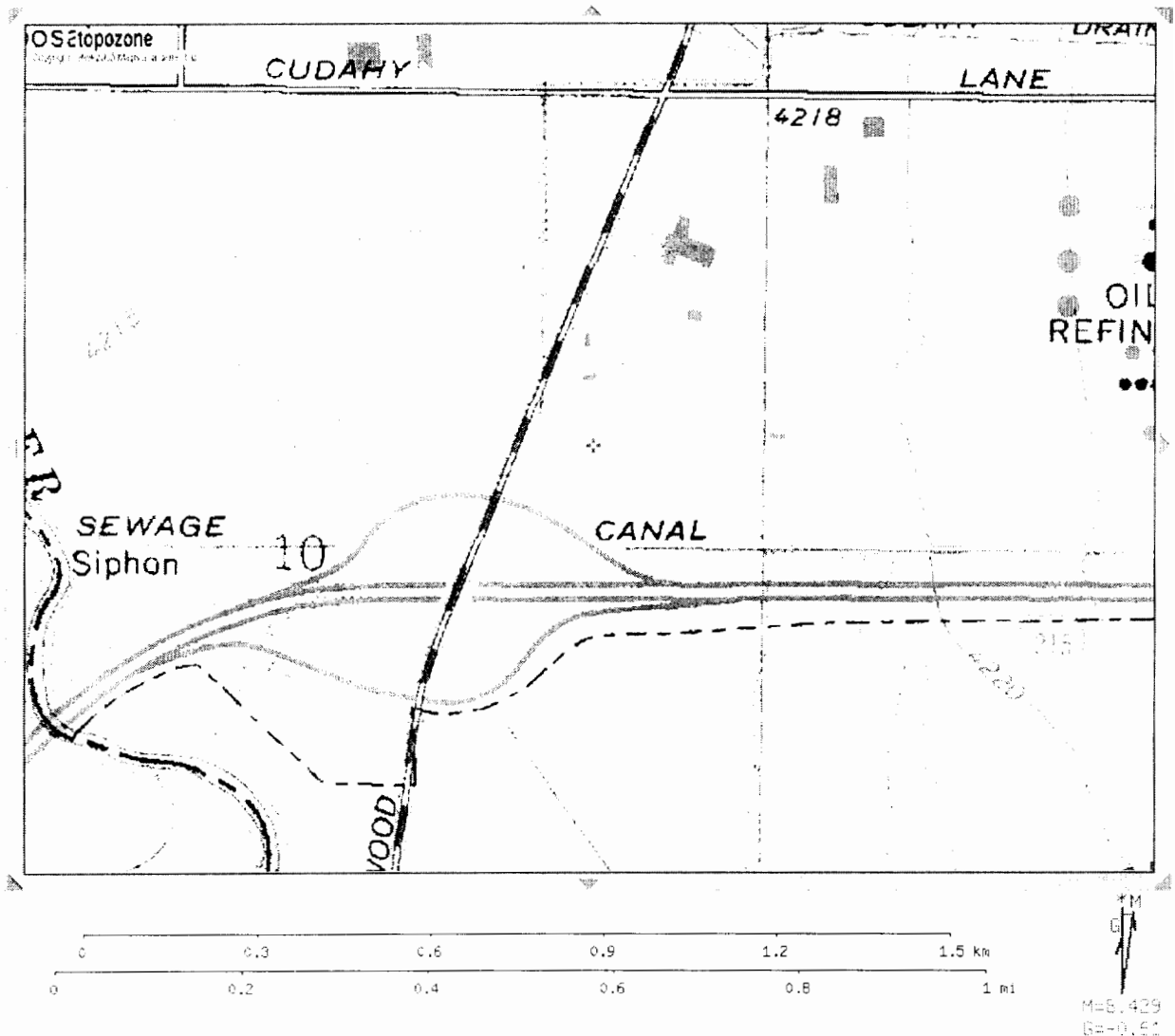
SOCIETY OF BROADCAST ENGINEERS, INC.
Indianapolis, Indiana

051029.1
Figure 2D

SBE Informal Objection to the Clarity Broadcasting Systems "Trucker TV" Applications

North SLC Truck Stop Coordinates of Record (24K Topographic Map)

40° 50' 11" N, 111° 56' 00" W (WGS84/NAD83);
USGS Salt Lake City North Quad
USGS Topozone: <http://topozone.cr.usgs.gov/>; photos, shaded relief, street maps, interactive coordinate display, and elevation data



The WD2XPK experimental application and the Clarity CARS application for North SLC specified the geographic coordinates of the truck stop as 40° 50' 11" N, 111° 56' 00" W, NAD83, but, as shown, these coordinates do not plot to any of the truck stop structures. Figure 2B shows the apparent true coordinates for the North SLC truck stop.



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051029.1
Figure 3A

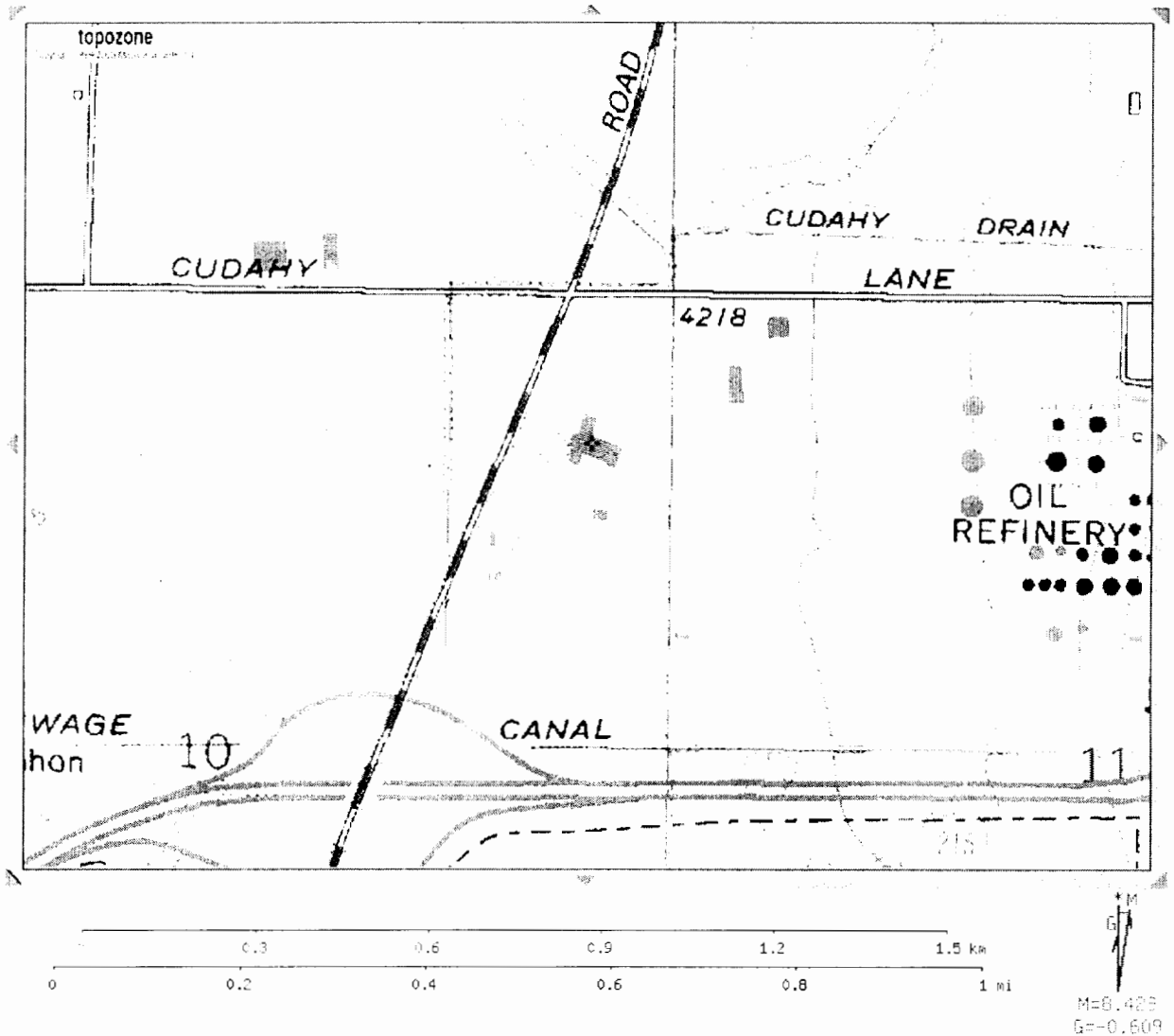
SBE Informal Objection to the Clarity Broadcasting Systems "Trucker TV" Applications

True North SLC Truck Stop Coordinates (24K Topographic Map)

40° 50' 22"N, 111° 55' 53"W (WGS84/NAD83)

USGS Salt Lake City North Quad

Views: TopoZone Pro aerial photos, shaded relief, street maps, interactive coordinate display, and elevation data



Apparent actual location of the WD2XPK test transmitter, and CARS application base station, on the North SLC truck stop building, located near the Redwood Road I215 Exit 28 in North Salt Lake City, Utah. The true geographic coordinates are 40° 50' 22" N, 111° 55' 53" W, NAD83.



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051029.1
Figure 3B

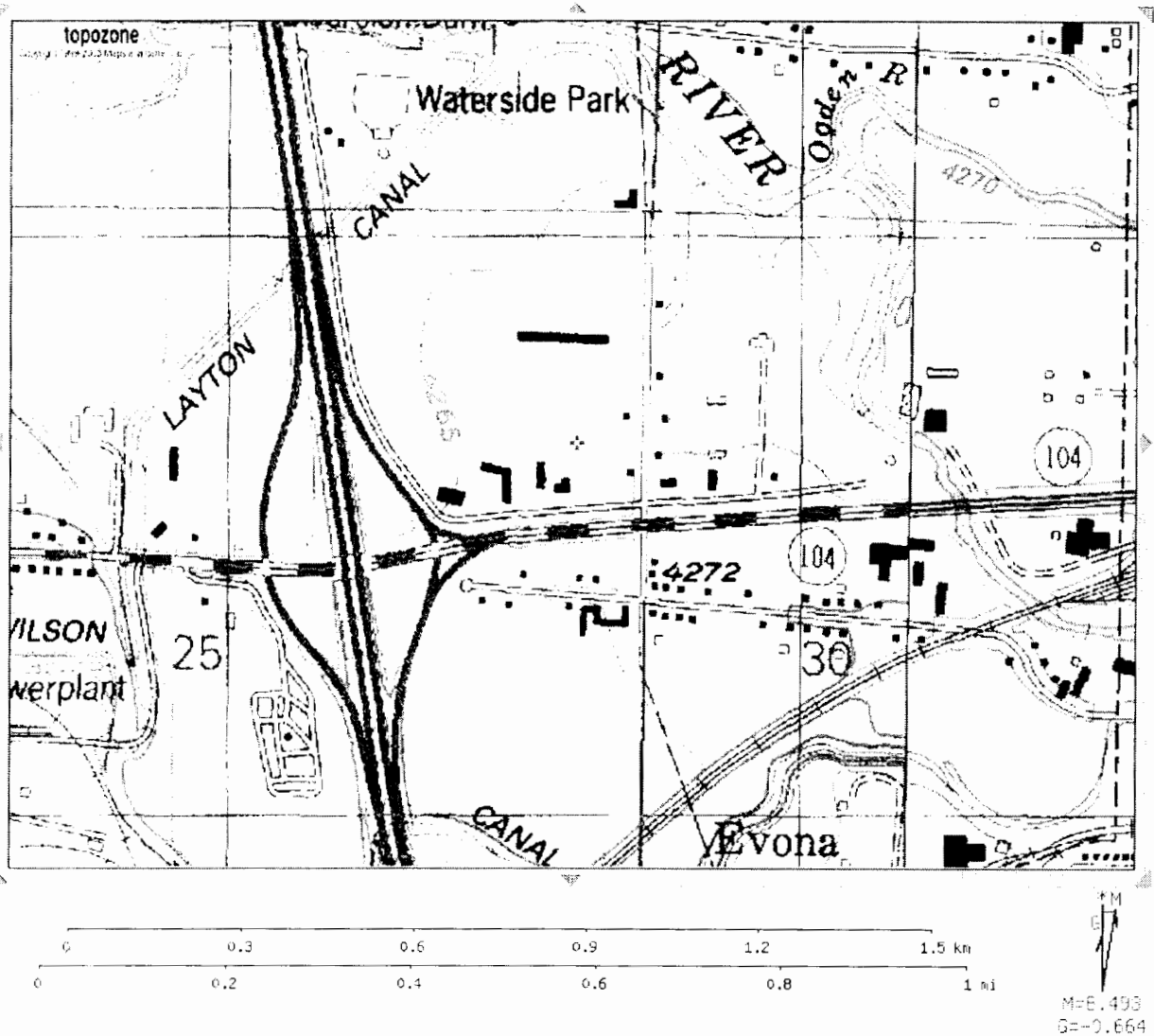
SBE Informal Objection to the Clarity Broadcasting Systems "Trucker TV" Applications

Ogden Truck Stop Coordinates of Record (24K Topographic Map)

41° 13' 50" N, 112° 00' 28" W (WGS84/NAD83)

USGS Roy Quad

View TopoZone for aerial photos, shaded relief, street maps, interactive coordinate display, and elevation data



The WD2XPK experimental application and the Clarity CARS application for Ogden specified the geographic coordinates of the truck stop as 41° 13' 50" N, 112° 00' 28" W, NAD83, but, as shown, these coordinates do not plot to any of the truck stop structures. Figure 3B shows the true truck stop coordinates, some 0.2 km to the southwest.



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Indianapolis, Indiana

051029.1
Figure 4A

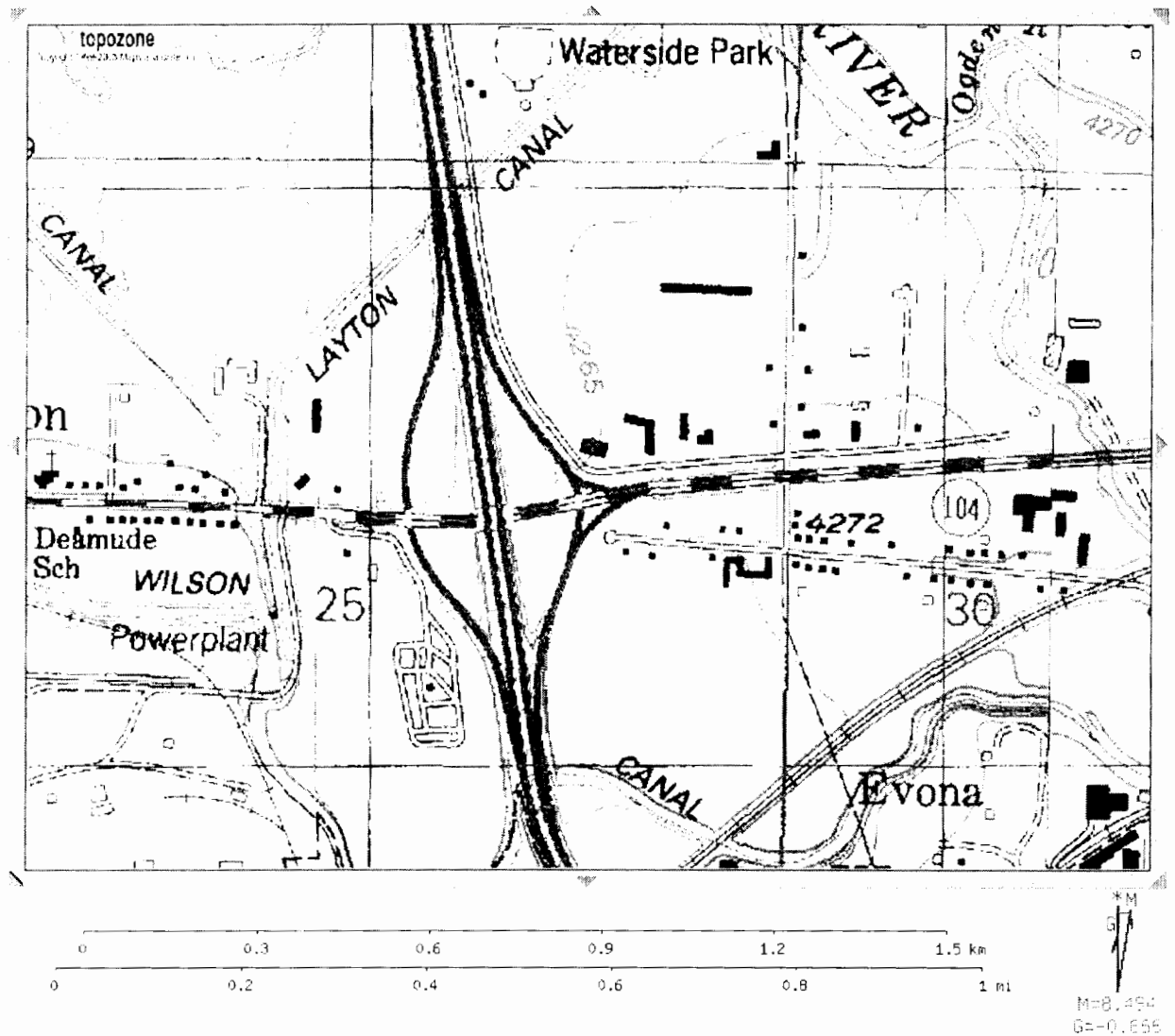
SBE Informal Objection to the Clarity Broadcasting Systems "Trucker TV" Applications

True Ogden Truck Stop Coordinates (24K Topographic Map)

41° 13' 47" N, 112° 00' 37" W (WGS84/NAD83)

USGS Roy Quad

View TopoZone Product at photos, shaded relief, street maps, interactive coordinate display, and elevation data



Apparent actual location of the Ogden truck stop, and WD2XPK test transmitter. The true geographic coordinates are 41° 13' 47" N, 112° 00' 37" W, NAD83. The true site elevation is 1,300.0 m (4,265 feet) AMSL.



SOCIETY OF BROADCAST ENGINEERS, INC.
Indianapolis, Indiana

051029.1
Figure 4B

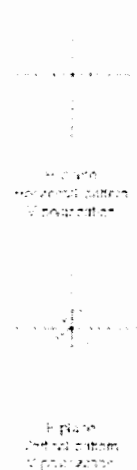
Kathrein OGB11-1900 Base Station Antenna Used As Surrogate for a Trucker TV Base Station Antenna

OGB11-1900D

M.A. A. P. I. C. S.

- Proven, solid construction, with special attention directed towards the custom fiberglass radome which provides superior strength and low deflection at wind velocities of up to 120 mph.
- Superior electrical performance, with low VSWR, wide bandwidth, flat frequency response, and extremely low intermodulation products.
- Excellent adhesion to form the solid metal to the base.
- Simple integrated mast attachment system, consists of only two V-bolts, which connect directly to the base.

Free body diagram	Diagram of the forces on the object
Impulse	Force times time
Linear	in a line
Newton's second law	$F = ma$
Normal	perpendicular
Newton's first law	if no net force, then no acceleration
Newton's third law	for every action, there is an equal and opposite reaction
Reaction	the opposite of the action
Weight	force of gravity
Weight	weight is the force of gravity on the object
Weight is a vector	it has magnitude and direction
Weight is proportional to mass	weight is proportional to mass
Weightless	free fall
Weighting	force of gravity on the object

[illegible]

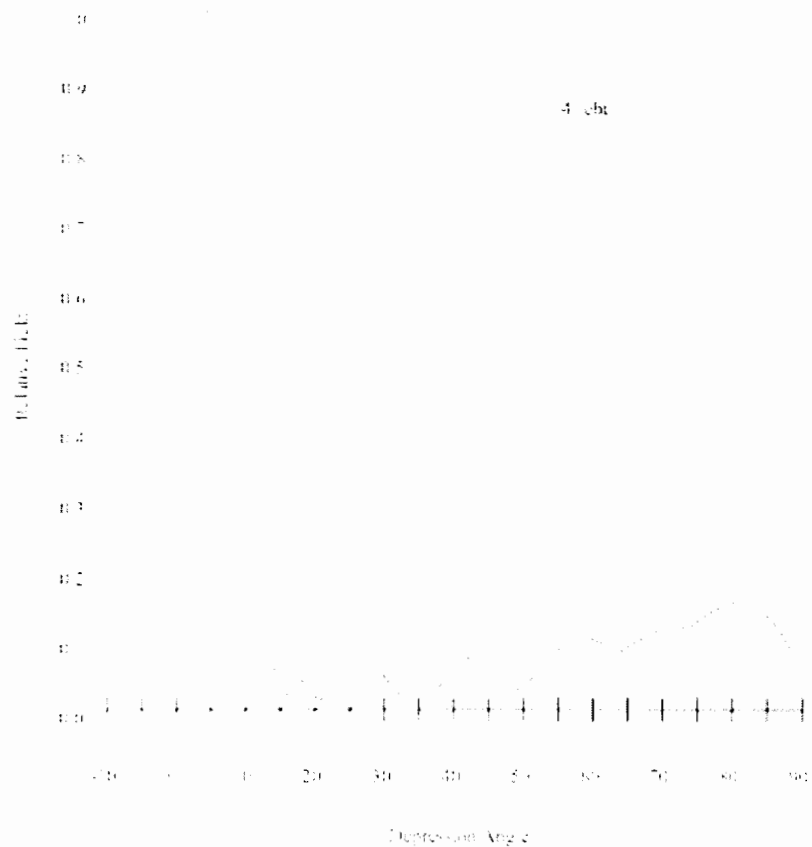
SBE

051029.1
Figure 5A

SBE Informal Objection to the Clarity Broadcasting Systems "Trucker TV" Applications

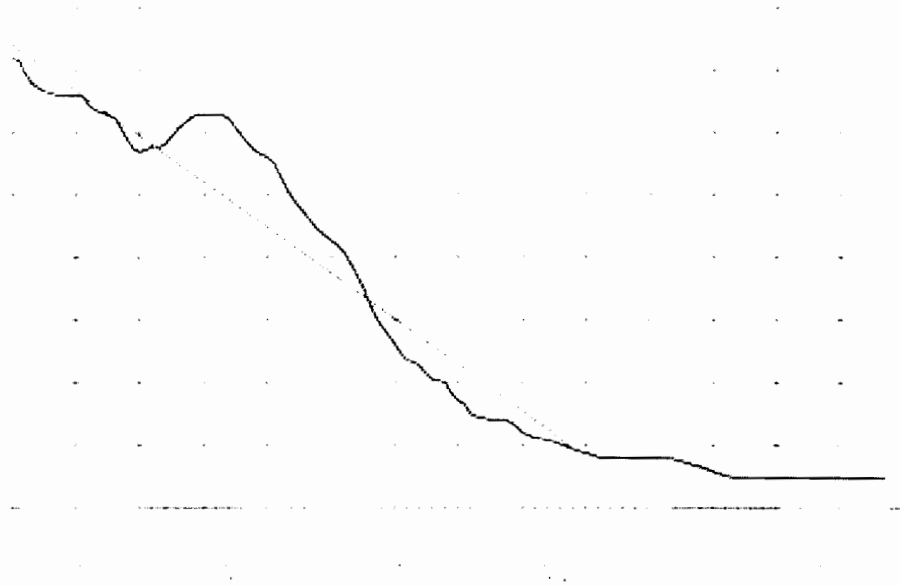
Kathrein OGB11-1900 Base Station Antenna Used As Surrogate for a Trucker TV Base Station Antenna

Kathrein Model OGB11-1900D



**SBE Informal Objection to the Clarity Broadcasting Systems
"Trucker TV" Applications**

**Terrain Profile from the Frazier Mountain ENG-RO Antenna to the
Flying J Truck Stop**

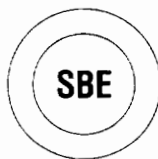
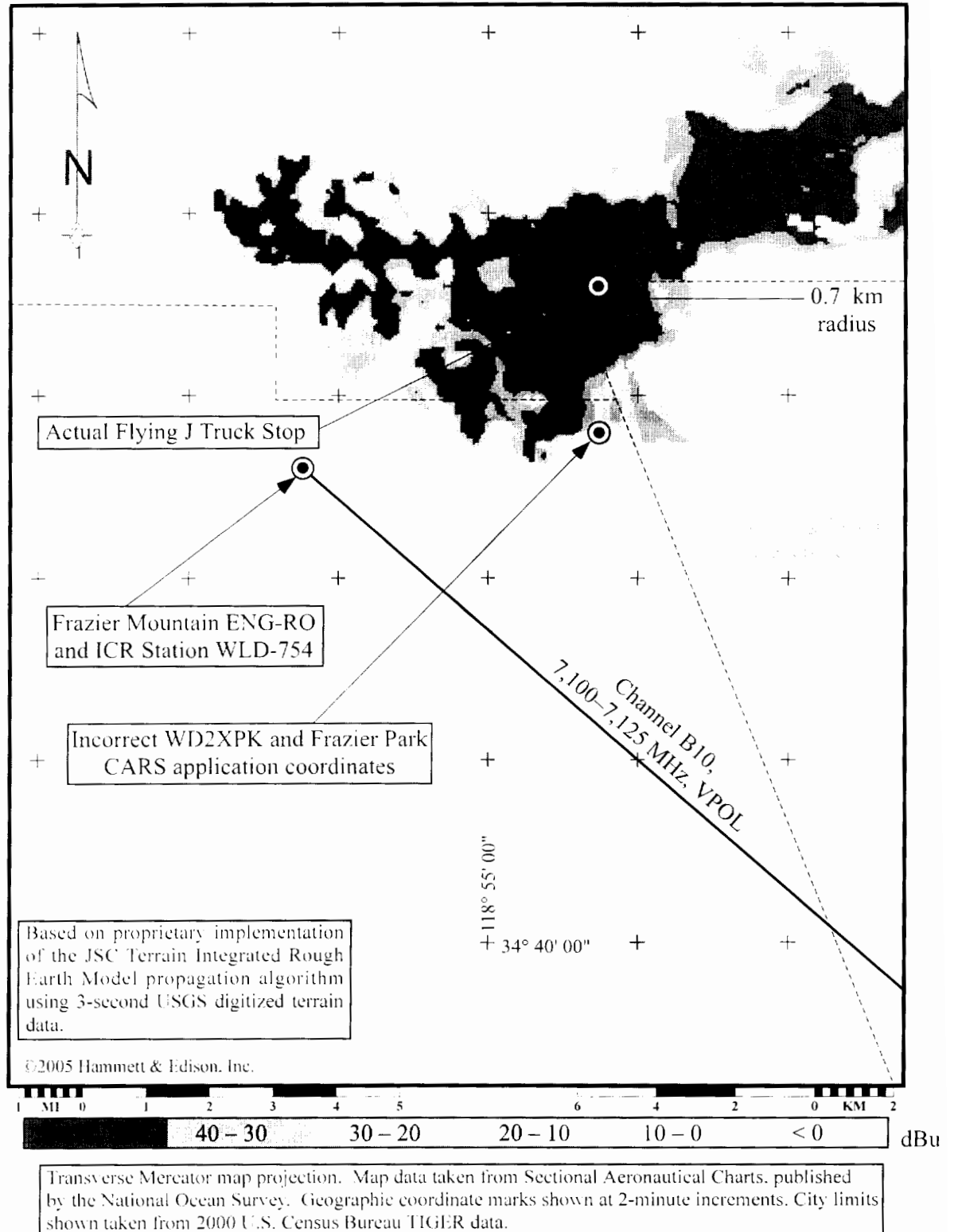


Terrain profile from the ENG-RO antenna at Frazier Mountain to the Flying J truck stop at Frazier Park, CA. The path is 8.84 km bearing 58.3°T. The terrain profile extends 5 km beyond the Flying J truck stop coordinates.



SBE Informal Objection to the Clarity Broadcasting Systems "Trucker TV" Applications

Terrain-Sensitive Coverage for Proposed Frazier Park Truck Stop Trucker TV Base Station (39.3 dBm EIRP omnidirectional per 12 MHz)

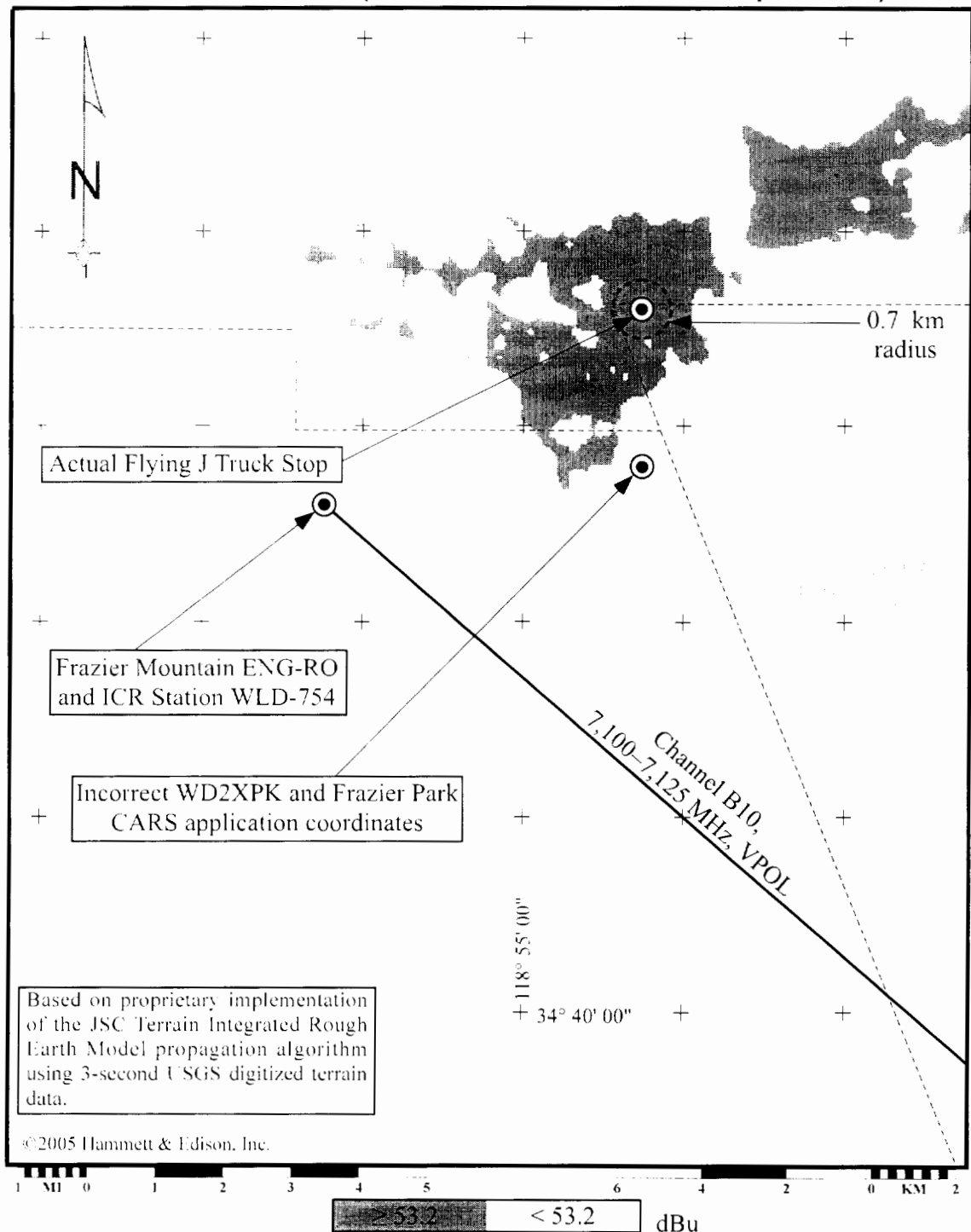


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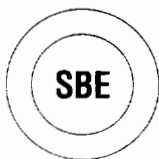
051029.1
Figure 7A

SBE Informal Objection to the Clarity Broadcasting Systems "Trucker TV" Applications

Terrain-Sensitive Coverage for Proposed Frazier Park Truck Stop Trucker TV Base Station (36.3 dBm EIRP omnidirectional per 6 MHz)



Transverse Mercator map projection. Map data taken from Sectional Aeronautical Charts, published by the National Ocean Survey. Geographic coordinate marks shown at 2-minute increments. City limits shown taken from 2000 U.S. Census Bureau TIGER data.



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Figure 7B