

Subject: Re: Summary of today's meeting
Date: Tue, 16 Jul 2002 18:23:31 -0400
From: "Rich Fabina" <RFABINA@fcc.gov>
To: <jinglis@erols.com>
CC: "Kenneth Nichols" <KNICHOLS@fcc.gov>

Phil,

I've used brackets and caps this time to include my comments.

rich

>>> Phillip Inglis <jinglis@erols.com> 07/15/02 09:22AM >>>
Rich,

Since you comments in bold did not come through the email process I enclosed what appeared to be your comments in brackets and added reply comments in all caps. I find that all caps work better than bold or italics or anything else with email systems.

Using a substitution technique for EIRP is no problem. As indicated a horn antenna will be used since dipoles are unavailable at 2.4 GHz. Since EIRP is needed, the signal generator level will have to be adjusted by the gain of horn antenna.

As for "gimbaled", this was a reference to the ability to swivel or change the angular alignment of the back to back antennas to permit the radiated beams to be redirected around the tunnel bends. We obviously will be changing the angular alignment in a manner that represents the actual installation arrangements. It's my understanding that this is limited to about 10 degrees. A change in alignment of 60 degrees indicates a relatively short tight curve was involved which would likely derail the subway car and is thus not contemplated.

If possible take a quick look and to see if our understandings are in alignment and let me know if there is anything that needs to be adjusted.

Phil

Rich Fabina wrote:

Phil,

I have added comments in bold text to your incoming statement to clarify a few points where I am not sure what you mean.

Just want to make sure everyone understands the testing that is required,

Let me know if you have any problems with the attached.

rich

>>> Phillip Inglis <jinglis@erols.com> 07/12/02 12:45AM >>>

Richard,

Following is a summary of my understanding of the outcome of today's meeting regarding acceptable test procedures for the Siemens subway car control system. Car radio units and wayside units will be separately certified. Compliance with the Section 15.247 EIRP limit of 36 dBm will be based on open field measurements for both the car and wayside radio units.

Car radio units will be configured with the antennas that they will use for the testing. Two configurations are applicable in this case, a 6 dB antenna and a back to back arrangement consisting of a 6 dB and a 9 dB antenna. Measurements to calculate the system EIRP will be made at 3 meters.

Wayside radio units will be configured with the antennas that they will use for testing. For this radio unit multiple antenna arrangements are provided. These consist of single 9 dB, back to back 9 dB, single 15 dB, back to back 15 dB, and a 4 antenna array consisting of parallel back to back 15 dB or a parallel back to back arrangement consisting of 9 dB and 15 dB antennas. The single and dual antenna configurations will be tested on a 3 meter site and the 4 antenna arrays will be tested on a 10 meter site in order to calculate EIRP. [EIRP levels should not be calculated, they should be measured by the substitution method where a signal generator and antenna is used to replace the transmitter and its antenna, the power on the generator is increased until you reproduce the reading on the measuring instrument and you read the output power off the generator.] THIS IS NO PROBLEM. A HORN ANTENNA WILL BE USED AS THE SUBSTITUTION ANTENNA AND THE GAIN OF THE HORN USED TO ADJUST THE SIGNAL GENERATOR READING. [I agree.]

In all cases maximum transmit power for any configuration will be one watt which is measured at the input to the antenna(s). Regardless of the transmit power measured at the input to the antenna, the EIRP limit will be observed.

The 4 antenna arrays have various installation arrangements in order to provide the functionality required for the control system. To investigate the variations in installation arrangements, 6 ft and 30 ft interconnecting cable lengths will be inserted during testing and any antennas that can be gimbaled will be varied to determine the extent of any reinforcement of the measured antenna pattern. [Not sure what you mean by "that can be gimbaled." If you mean that antennas that will be installed between 120 and 180 degrees apart in actual operation will be evaluated in several positions between 120 and 180 degrees, I agree.] BY GIMBALED, I MEANT THAT ONE ANTENNA IN A BACK TO BACK ARRANGEMENT CAN BE SWIVELED SLIGHTLY (ABOUT 10 DEGREES) IN ORDER TO DIRECT SIGNALS AROUND THE SLIGHT BENDS IN THE TUNNELS. ITS MY UNDERSTANDING THAT THIS SWIVEL ARRANGEMENT IS LIMITED TO ABOUT 10 DEGREES. IN ANY EVENT, TYPICAL TUNNEL INSTALLATION CONFIGURATIONS WILL BE FOLLOWED.[I agree.]

The above testing procedures were considered by the staff to be acceptable in showing the Siemens Transportation System meets the Section 15.247 requirements. They represent configurations that will produce the highest emission levels based on expected configurations as installed. If you concur, please reply to this email indicating you concur.

Regards,
Phil

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