

-----Original Message-----

From: William Graff [mailto:whgraff@qwest.net]

Sent: Monday, November 11, 2002 7:45 AM

To: Denise Godfrey; Tom Tidwell; David Light

Subject: FW: Request for additional information

Guys,

Attached are excerpts from an FCC request for information sent out last week. I tried to send it along while I was on the road last week, but it was bounced by your email server. Anyways, the FCC requests that you address the following items:

1. The user manual makes the following statement "Install the BEE III unit in the vehicle in accordance with the instructions supplied with the radar's mounting brackets." This information was not found in any exhibit. It is important that appropriate installation instruction be provided to the installer to assure that RF exposure concerns are address. The grant condition requires that appropriate RF safety information be provided to the installer and user. Please update the user manual to include clear installation and operational information to assure compliance with RF exposure limits.

Refer to page 49 of revised user manual file 99066D.doc (uploaded 11-13).

2. Please detail how conducted power was measured. Please provide a photograph of the setup. Was the unit disassembled to access an internal waveguide? Internal photographs do not clearly show a waveguide. Please provide additional photographs showing the waveguide antenna assembly.

The waveguide was installed in the assembly for testing purposes only. Photos are attached. (uploaded 11-13 in "Setup photos")

3. Please provide photograph, technical specifications and general description of the antenna.

Photos (uploaded 11-13 in "Internal photos")

Description:

Circularly polarized antenna operating in the Ka band. All electrical components are enclosed in a sealed metal housing to defeat radio frequency interference. Metal housing has a black polycarbonate radome (housing) over it to protect the internal components, including the antenna lens, from physical damage and from damage from the elements. Plastic housing creates a waterproof O-ring seal, allowing all-weather operation outside of the patrol vehicle. Has aiming sights.

Operating Frequency: Ka band: 33.8 GHz + 100 MHz

K band: 24.150 GHz + 100MHz

Gain: 24 dBi

Microwave Source: Solid-state Gunn effect diode.

Output Power: Nominal 12-30 mW / Maximum 50 mW

Radiated Power Density: Less than 2mW/cm² at 5 cm.

Type: Circularly polarized conical horn

Beam Width: 13° Nominal

Beam Width Variance: +1° at maximum manufacturer's tolerance

Side Lobe: 22 dB down from main beam maximum

Received Microwave Beam: Utilizes transmitting antenna. Isolation accomplished by a turnstile duplexer.

Mixer Diode: Balanced pair Schottky barrier type rated for 100mW burnout.

Range: 4000 ft (1219m) typical for average size vehicle.

Range varies by size of vehicle, terrain, traffic conditions, weather conditions, and other external conditions present in various locations.

Physical Size: Ka Band Weight: 0.5 lb. (.23 kg)

Length: 3.6" (9.1 cm)

Diameter: 2.0" (5.2 cm)

(2.6" (6.5 cm) at

waterproof seal)

K Band Weight: 0.72 lb. (.325 kg)

Length: 4.625" (11.75 cm)

Diameter: 2.75" (7 cm)

(3.375" (8.57 cm) at waterproof seal)

5. If the gun diode is the final stage please provide I and V for that device.

The operating voltage on the oscillator is typically 6 volts with about 0.35 amps of current. Gunn diodes are very inefficient RF generators, in the range of 5% and the power output of the oscillator depends on the coupling of the power out through an iris which have fixed mechanical dimensions that are not accessible to the user

Sincerely,

Bill

~~~~~  
~ William H. Graff, NARTE Certified  
~ President and Director of Engineering  
~ AmericanTCB, Inc.  
~ 6731 Whittier Ave.  
~ McLean, VA 22101  
~ mailto:whgraff@americanTCB.com  
~ mobile mailto:whgraff@attglobal.net  
~ Direct Phone: (480)317-0683  
~ Direct Mobile: (602)790-6788  
~ Corporate Phone: (703)847-4700

~ Corporate FAX: (703)847-6888

~

~~~~~