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30 December 2002

Federal Communications Commission
Authorization and Evaluation Division
7435 Oakland Mills Road
Columbia, MD 21046

SUBJECT: i-PORT III Modifications for FCC Class-B Compliance

To Whom It May Concern:

The following modifications were done during pre-scan to comply with FCC Class-B Section 15.109, "Unintentional Radiated Emissions in RX Mode"
Each step of modification had minimal success; some attempts actually retuned the peak signal to another frequency.

Every test determined that the emissions were radiating down the cables, i.e. the cables were acting as an antenna

- Ferrite Beads on unshielded CAT-5 LAN and DC Supply reduced emissions by approximately –3dB.
- The DC was grounded to the chassis, reducing the emissions by another 2-3dB

Several modifications to the grounding of the RF portion of the Circuitry were done.

- Unused pins of CAT-5 Ethernet connector were grounded to the RJ-45 Shielded case
- Unused pins of RS-232 DB-9 Serial connector were grounded to the DB-9 Shielded case
- The case of the RJ-45 and the DB-9 connectors were grounded to the –DC supply and Chassis Ground.

No noticeable change was measured.

Using a Dremel polishing tool, the surface of the chassis itself was burnished to expose the aluminum case under the anodized surface.
Specifically:

- Inside edge of rear plate, edge of rear of chassis parameter, rear edges of back-side of the front plate, all inner surfaces where front plate contacts chassis, contact surface of hinged cover and top of chassis.
- The entire inside of the chassis, including the inside of all plates and cover were painted with Conductive Nickel shielding spray
- Conductive foam gasket material was placed along every surface that the front and rear plates contact the chassis and RF can be generated.
- Various gaskets were used, manufactured by Schlegel Systems Inc, specifically: E0813T, E3713T, E6313T, E1213T, EC313T, E5819G-0191

This reduced emissions by approximately -10dB on average but retuned the signal around 740MHz to well over the FCC limit.

A 916.5 MHz spike was noticed. It can be turned off but an 868.35 MHz signal appears.
This is the TX Carrier signal, which should be off during RX only

- Firmware and software modifications were written by the Identec Engineers to turn this off during RX mode.
- Software Version 3.20, Firmware Version 3.70

This modification only affected the fundamental TX carrier frequency in RX mode.
A low 0.3dB quasi-peak signal remained over the FCC limit at approximately 814MHz. The level of emissions could be increased / decreased significantly by moving any cable by a little as 1"

Further Modifications.

- All openings within the case, including the area around the conduit feed through were burnished to the metal
- Copper tape was installed over every opening ensuring that it also made contact with the exposed metal in at least one area.
- The i-PORT III was installed in the case such that it was completely isolated from the NEMA enclosure.
- The NEMA enclosure is a HOFFMAN ASE12X12X4
- Power Supply is inside the enclosure

Note that the I/O lines will NOT be used; any reference to them will be removed from the User Manual, as well, the RS-232 is not used outside of engineering professional representative's initial setup.

Modifications completed as at 20-Dec-2002 and modification statement prepared by
Merv Flahr, CTech.
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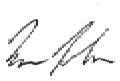
Yours truly,



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