PREPARED BY:	PHONE:	DATE:	REV.	DOCUMENT INFO:
MICHAEL S. FULK	(804) 385-2121	10/17/2000	A	MF2000:133

SUBJECT: PANTHER 300M FCC TYPE ACCEPTANCE – RESPONSE TO FCC CONCERNS

To: Bill Graff, President, ACTB
Desmond Fraser, President, RheinTech Labs
Bruno Clavier, Director of EMC, RheinTech Labs
Cc: S. Frackleton D. Foust S. Miller T. Hsu D. Dumonsau T. Camper J. Ferr

CNE response to FCC "731 Confirmation Number": TC98467

1) General Population/Uncontrolled RF Exposure vs. Occupational/Controlled RF Exposure

The FCC's original comment last month was that Occupational/Controlled (O/C) RF Exposure filings for Land Mobile radios could not be processed by a TCB (only directly through the FCC), & that CNE would have to go to a General Population/Uncontrolled RF Exposure (GP/U) in order to process the Panther 300M FCC filing through a TCB.

Now the FCC has ruled that there are MPE radius distance requirements that must be met before a radio can be given an FCC grant with GP/U RF exposure limits. Specifically, the FCC is stating that the MPE distance must NOT exceed a distance which is equal to "half the width of a typical passenger vehicle".

The reality is that the Panther 300M will be a land mobile radio product whose use will be licensed by the FCC to customers that have legitimate Business & Industrial, & lower tier Public Service Land Mobile radio needs. So, the Panther 300M should, in reality, be filed for the O/C RF exposure limits because its use is based on occupational needs, & the user WILL have training on how to use the mobile. Note: the decision to file for O/C RF exposure limits may preclude the filing the Panther 300M for Part 95 (A) General Mobile Radio Services.

My concern is time to market. If the Panther 300M is re-filed with its Operator's & Installation manuals changed for O/C RF exposure limits, then the FCC is stating that the grant cannot be issued via a TCB. If CNE reverses course, and re-files with the O/C RF exposure limits, how will this affect the timing of the issuance of an FCC grant?

It was mentioned that the FCC had approved another land mobile radio in recent months that had a 30 Watt rated power, & perhaps CNE should reconsider filing the Panther 300M with a 30 Watt rated power. This would be an unacceptable tradeoff for CNE. CNE needs the 40 W rated power for competitiveness in the market.

The FCC questioned the use of 0 dB to 6 dBd gain antennas in the RF power exposure chart. Since the FCC has already ruled that use of even a 0 dB gain antenna results in an MPE radius that exceeds even "half the width of a typical passenger vehicle", then use of even higher gain antennas results makes the RF exposure levels even higher.

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The FCC, RTL, ATCB, & Com-Net Ericsson have, until now, been thinking only of RF exposure levels experienced by operators/passengers in an automobile, and potential RF exposure to people standing near a stationary automobile. The reality is that a great majority of users would install a quarter-wave whip antenna (0 dBd) on the automobile. [There may be a small percentage of users that would install a 5/8 wavelength antenna (theoretically 3 dBd) on the car.]

However, there is another potential use of a land mobile radio - that is as a dispatch radio in an office with a base station antenna. It is possible that the antennas could easily have gains anywhere from 0 to 6 dBd.

So, here is the compromise that Com-Net Ericsson would like to propose to the FCC:

a) Limit the antenna installations on automobiles to use of 1/4 wavelength whip antennas (0 dBd) & 5/8 wavelength whip antennas (3 dBd), and

b) Allow use of base station antennas with gains anywhere from 0 to +6 dBd for dispatch applications.

c) A notice in the Panther 300M Operator's & Installation manuals listing the above restrictions.

PLEASE CHECK TO SEE IF THE FCC WOULD BE IN AGREEMENT WITH COM-NET ERICSSON'S PROPOSAL.

2) VHF & UHF Band MPE information content in the Operator's & Installation manuals

Com-Net Ericsson is in the process of developing 4 different splits of the Panther 300M mobile. In order of development, they are:

a) the UHF-M split (450-488 MHz),
b) the VHF-H split (150-174 MHz),
c) the VHF-L split (136-155 MHz),
d) the UHF-H split (470-512 MHz).

Com-Net Ericsson will want to use the same Operator's manual & the same Installation manual for each of the 4 splits. In the interest of minimizing numerous iterations of the manuals, CNE had decided to include the MPE radius information in the manuals for ALL 4 splits. If the FCC requires that the first version of the manuals only contain the 450-488 MHz MPE radius information, then CNE would have to issue 3 other future revisions of the manuals as each split is being developed. Also, CNE would have to wash out the earliest versions of manuals that were developed to coexist with the earliest specific splits.

CNE WOULD LIKE FOR THE FCC TO RECONSIDER THEIR REQUEST TO REMOVE THE VHF BAND MPE RADIUS INFORMATION FROM THE MANUALS FOR THE UHF-M SPLIT TYPE ACCEPTANCE. IF THE FCC STILL INSISTS THAT COM-NET ERICSSON CREATE 4 DIFFERENT VERSIONS OF OPERATOR'S & INSTALLATION MANUALS AS EACH SPLIT IS FCC TYPE ACCEPTED, THEN COM-NET ERICSSON WILL UNHAPPILY COMPLY.

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3) The FCC continues to insist upon the use of a 50% Tx duty cycle factor during MPE calculations. CNE is technically perplexed as to why the FCC is considering duty cycle in MPE calculations.

CNE can easily understand the critical use of a Tx duty cycle factor in SAR calculations for land mobile radio personals because the Tx time results in the heating of the simulated brain/muscle tissue. However, in mobile applications MPE is used in place of SAR because the transceiver is located > 20 cm away from the body of the user. To CNE's understanding, MPE is an instantaneously Maximum Permissive Emission at any given point in time, so Tx duty cycle is not an issue.

CNE REQUESTS A RESPONSE AS TO WHY TX DUTY CYCLE WOULD BE A FACTOR IN MPE CALCULATIONS!?

SUMMARY:

CNE is willing to re-file the Panther 300M application with modifications to the Operator's manual & Installation manual based on discussions listed the above three issues. However, CNE requests a greater understanding of the FCC's response to the listed issues.

RTL & ACTB are requested to review this memo, correspond with the FCC, and provide feedback back to CNE so that the manuals can be re-written to satisfy FCC concerns. RTL & ACTB are also requested to provide an estimate of the 300M filing delay by changing the RF exposure levels to O/C, and having to file directly with the FCC rather than through a TCB.

A final note: if RTL & ATCB believe that forwarding this memo to the FCC would be of use to the FCC in regards to the FCC filing effort for the Panther 300M mobile, then please do so. Thank you.

Kind regards,

Michael Fulk
Senior Technical Leader
Hardware Development Engineering