





**Senthikumar
Rajagopal/CedarRapids/RockwellCollins**

12/12/2008 05:32 PM

To Holly J
Riesz/WashingtonDC/RockwellCollins@RockwellCollins
cc Chris A
Bradley/CedarRapids/RockwellCollins@RockwellCollins
bcc
Subject Re: Fw: Pending Equipment Authorization 

History:  This message has been replied to.

Holly,



Hope this helps, refer attachment and let me know. Exhibit K - RF exposure information amended_02.doc

Thanks,
Senthil

Holly J Riesz/WashingtonDC/RockwellCollins



**Holly J
Riesz/WashingtonDC/RockwellCollins**

12/10/2008 08:04 AM

To Senthikumar
Rajagopal/CedarRapids/RockwellCollins@RockwellCollins
cc Chris A
Bradley/CedarRapids/RockwellCollins@RockwellCollins
Subject Fw: Pending Equipment Authorization

Hey Senthil,

Can you please respond to this (to me) and I'll upload to the FCC website. Apparently our RF exposure report is not adequate.

Thanks!
Holly

Holly J. Riesz
1300 Wilson Blvd, Suite 200
Arlington, VA 22209
(703) 516-8210
(703) 516-8293 [fax]

----- Forwarded by Holly J Riesz/WashingtonDC/RockwellCollins on 12/10/2008 09:03 AM -----



"Tim Harrington"
<Tim.Harrington@fcc.gov>

12/09/2008 04:56 PM

To <hjriesz@rockwellcollins.com>
cc "Diane Poole" <Diane.Poole@fcc.gov>, "Tim Harrington"
<Tim.Harrington@fcc.gov>
Subject RE: Pending Equipment Authorization

Hello Ms. Riesz

Diane P asked me to comment.

Concerning response for corresp. 36741, FCC/OET policy is that RF exposure occup. limits are generally not applied for mobile station equipment operating on radio services with public networks. For that and other reasons we request that RF exposure exhibit be in terms of estimated exposure levels at 20 cm from typical or specific antenna installation configuration (or other distance where MPE gen. pop. MPE limits are met), as estimated using e.g. OET Bulletin 65 equation 3 or 4, and without reference to occup. limits. It may also be useful to list ERP levels relative to MPE categ. excl. ERP levels of 2.1091, i.e. 1.5 W for f-less-than-or-equal-to 1.5 GHz and 3 W for f-greater-than 1.5 GHz. Please let me know if questions or concerns, or please upload adjusted exhibit into e-filing and reply to corresp. 36471 therein when ready.

Best Regards
Tim Harrington
FCC/OET/Lab/EAB

<<36741.pdf>>

From: Diane Poole
Sent: Tuesday, December 09, 2008 10:47 AM
To: Tim Harrington
Subject: FW: Pending Equipment Authorization

<Response to FCC_120208.pdf>

From: hjriesz@rockwellcollins.com [mailto:hjriesz@rockwellcollins.com]
Sent: Monday, December 08, 2008 2:44 PM
To: Diane Poole
Subject: RE: Pending Equipment Authorization

HI Ms Poole,

I didn't have a correspondence number to upload this to the FCC website, so I'm sending the email. Also, I updated the contact information as well.

Please see the attached answers from our Engineer. If you have any further questions or need additional information please let me know.

Thank you!
Holly

Holly J. Riesz
1300 Wilson Blvd, Suite 200
Arlington, VA 22209
(703) 516-8210
(703) 516-8293 [fax]

[attachment "36741.pdf" deleted by Senthilkumar Rajagopal/CedarRapids/RockwellCollins]

UMTS-2100

Exhibit K - Radiation Exposure Information

UMTS-2100

Exhibit K - Radiation Exposure Information

This section affirms compliance with respect to controlled and uncontrolled exposure limits for MPE/SAR.

Requirements:

The rules concerning RF radiation exposure are 1.1307, 1.1310, and 2.1091

FCC Section 1.1307 Table 1 excludes devices with their non-building-mounted antenna's height above the ground level to the lowest point of the antenna greater than 10meter. This includes for Cellular Radiotelephone Service devices (subpart H of part 22) and Personal Communication Services (part 24). The UMTS-2100 unit's antenna will be mounted, more than 10meter height from the ground, on the topside of the exterior structure of air transport aircraft, and it is inaccessible to any personnel without ladders or special lift equipment and this location is highly restricted to only airport maintenance personnel and is off limits to any general population. This further ensures compliance in terms minimum required separation distance to comply with general population limits.

FCC Section 1.1310 Table 1 defines the Maximum Permissible Exposure (MPE) power density limits for General Population/Uncontrolled Exposure as follows;

300-1500MHz	0.6000mW/cm ² (f/1500; f=900MHz)
1500-100,000MHz	1.0000mW/cm ²

Operating Bands	EIRP	Power Density*
850/1900/2100MHz WCDMA	Power class 3 (+24dBm)	S=0.1609mW/cm ² (highest antenna gain is at 1900MHz, 5.1dBi)
850/900MHz GSM	GSM Power class 4 (+33dBm)	S=0.0251mW/cm ² (highest antenna gain is at 900MHz, -12dBi)
1800/1900MHz GSM	GSM Power class 1 (+30dBm)	S=0.1609mW/cm ² (highest antenna gain is at 1900MHz, 5.1dBi)

*Estimated MPE level at 20cm from transmitting antenna per OET Bulletin 65 equation 3

Maximum EIRP levels above & below 1.5GHz	
1.5 GHz or below	UMTS-2100's Maximum EIRP at the antenna is 2Watts (850/900MHz bands)
Above 1.5 GHz	UMTS-2100's Maximum EIRP at the antenna is 1Watt (1800/1900MHz bands)

Section 2.1091(b) defines a "mobile device" as "a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitters radiating structures and the body of the user(s) or nearby persons."

The above table on MPE for the UMTS-2100 system is well below the MPE FCC limits.

Radiation Hazard Assessment:

The UMTS-2100 transmitter output is very low power. Under maximum operating conditions, the maximum RF power output of the UMTS-2100 is in the order of 2 watts, roughly equivalent to a small night light.

Compliance Statement:

The UMTS-2100 does not exceed the Maximum Permissible Exposure (MPE) limits of 1mW/cm² contained in FCC Section 1.1310 Table 1.

The UMTS-2100 unit contains Sierra Wireless MC8780/MC8781 GSM/UMTS cellular modem (FCC ID: N7NMC8780) and is superseded by AJK8222635.