

Carl Huie

"Amendment"

From: Rummel, Jeffrey [Rummel.Jeffrey@ARENTFOX.COM]
Sent: Thursday, March 11, 2004 1:24 PM
To: Carl Huie
Cc: Alejandro, Robin; Lyle Bruce; David Noon; Seppala, Vicki
Subject: Phelps Dodge Corporation - Experimental License Application - File No. 0145-EX-ST-2004

Mr. Huie:

The manufacturer of the subject system has responded with respect to some of the technical issues you have raised. The information we have been provided is set forth below.

In order to make sure that we resolve these issues to the Commission's satisfaction, we would like to have a conference call with you on Friday, March 12 between 5-6pm (EST). Because the call will involve international parties that require significant notice, please confirm as soon as possible that we can conduct the call at that proposed time and date.

Change of Frequency

Although a final decision has not yet been made, we are advised by the manufacturer that the system centre frequency can be changed to 9.57 GHz. Therefore, a bandwidth of 140 MHz will fall within the 9.5-10.0 GHz band. Although this would require some redesign and testing, we do not want the approval process to be significantly delayed. Accordingly, we would like to discuss this issue with you one more time on Friday in the conference call before we make a final determination.

Radar Emissions and "Pulse Width/Pulse Repetition Rate"

The manufacturer has advised that the radar transmission is a spread spectrum signal which is then pulsed to remove reflections from very close range targets. The spread spectrum bandwidth is greater than the pulsed spectrum bandwidth, which is the reason why we allocated 'A' and '3' as the first and second emission codes. Having said this, the following is an elaboration on the waveform parameters that may assist in your review of the issue:

The spread spectrum signal consists of equally spaced spectral lines. The lines are equal amplitude (+/- 2 dB variation) with the exception of the central line (carrier frequency) which is typically 10 dB higher. The spread spectrum signal is generated by upconverting a baseband signal and retaining both sidebands. Phases of the spectrum lines in the baseband signal are chosen for minimum excursion in the time domain. The spread spectrum signal is then pulsed for range-gating purposes. The radar transmits the above pulsed spread-spectrum wavetrain for 20 ms every 120 ms.

There are two modes of the radar that is changeable depending on the mine application. The waveform specifications for the two modes (Mode 1 and Mode 2) are:

Mode 1: 433 spectral lines spaced by 322.266 kHz resulting in a 139.541 MHz bandwidth. The spread spectrum signal is then pulsed with a pulse width of 2.896 microseconds and with a PRF of 161.867 kHz.

Mode 2: 897 spectral lines spaced by 107.422 kHz resulting in a 96.250 MHz bandwidth. The spread spectrum signal is then pulsed with a pulse width of 4.522 microseconds and with a PRF of 107.107 kHz.

Point to Point Emissions

The manufacturer has advised that it understands your comments about the point-to-point transceiver vs. modem issue. The manufacturer is contacting the equipment distributor for the emission codes and we will forward them to you as soon as possible.

Best regards,

Jeffrey Rummel

Jeffrey E. Rummel, Esq.
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Carl Huie

From: Rummel, Jeffrey [Rummel.Jeffrey@ARENTFOX.COM]
Sent: Wednesday, March 17, 2004 2:55 PM
To: Carl Huie
Cc: Alejandro, Robin; Seppala, Vicki; Lyle Bruce; David Noon
Subject: RE: Phelps Dodge Corporation - Experimental License Application - File No. 0145-EX-ST-2004

Mr. Huie:

As a follow-up to our recent conversations concerning the above-referenced application, this is to provide confirmation as to the outstanding issues existing for the application, as follows:

1. Change of Frequency for Radar

For the radar, the applicant has agreed to change the center frequency to 9.5525 GHz, with a bandwidth 105.00 MHz. The upper and lower frequency bands will be 9.500 GHz and 9.605 GHz.

2. Radar Emissions

Please update the Radar Emissions data consistent with the information on this subject that was contained in my prior March 11 e-mail to you (text set forth below).

3. Point-to-Point Emissions

The Emission Codes for the point-to-point radio link are F, 1, D. The Modulating Bandwidth is 175 kHz, calculated with $B_n = 2M + 2DK$, and $K = 1$, $M = 57.2\text{kHz}$, $D = 60\text{kHz}$ Modulating signal: Direct frequency modulated signal with a GMSK filter applied. Max modulating frequency is 57.2kHz and max deviation is 60kHz.

As we discussed, it would be greatly appreciated if you could update the application to reflect these modifications.

It is the applicant's understanding that the above resolves the outstanding issues that needed to be addressed in order for the STA application to be forwarded for coordination. Please let us know if any other issues exist or arise in the future.

Best regards,

Jeffrey Rummel

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> -----Original Message-----

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> To: 'Carl Huie'

> Cc: Alejandro, Robin; Lyle Bruce; 'David Noon'; Seppala, Vicki
> Subject: Phelps Dodge Corporation - Experimental License Application - File No. 0145-EX-ST-2004
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