RF Technology, Inc.
16 Testa Place
South Norwalk, CT 06854

14JUN00

Federal Communications Commission
Authorization and Evaluation Division

Gentlemen,

We are submitting this application is for adding emission designators to our existing granted equipment B8HUCL-70T. The emission designators we want to add are 10M0F8W, 25M0D9W and10M0D9W.

The addition of these emission designators will not change the equipment characteristics as applied for under the original grant.

The UCL-70T is a heterodyne radio that accepts an internal or external 70MHz modulated signal. The 70MHz modulated signal can be either analog or digital.

NECESSARY BANDWIDTH for 10M0F8W
The necessary bandwidth for a television video signal and simultaneous transmission of audio was determined by the formula Bn = 2M+2DK.

Where: Bn = Necessary Bandwidth
M = The video bandwidth and the FM subcarrier deviation.
D = Half the difference between the maximum and minimum values of the instantaneous frequency when modulated by the visual signal. Plus half the difference between the maximum and minimum values of the instantaneous frequency.
K = 1.

D = 0.8MHz,   M = 4.2MHz,

Bn = 2M=2DK, = 2(4.2MHz) = 2(0.8MHz), = 10MHz.

The audio subcarrier was not used in the necessary bandwidth calculations because exception was taken per Para. 2.202(f)(3). That is, the modulation index of the main carrier due to the subcarrier does not exceed 0.25 and the rms deviation of the main carrier due to the subcarrier does not exceed 3.55% of the peak deviation of the main carrier.

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NECESSARY BANDWIDTH for 25M0D9W
To calculate the necessary bandwidth the following formula was used:

$Bn = 1/m(Din + Do)Fe \times \alpha$

Where: Bn = Necessary Bandwidth
  m = Modulation Efficiency = 4 for 16QAM
  Din = Input Data Rate = 58.2 MB/s
  Do = Overhead Data = 2.0MB/s
  Fe = Forward Error Correction = 204/184 (Reed Solomon)
  α = Filter Roll Off Factor = 1.35

$Bn = 1/4(58.2 + 2)204/184 \times 1.35$
$Bn = 1/4(60.2)1.1 \times 1.35$
$Bn = (15.05)1.1 \times 1.35$
$Bn = 16.555 \times 1.35$
$Bn = 22.35MHz$

NECESSARY BANDWIDTH for 10M0D9W
To calculate the necessary bandwidth the following formula was used:

$Bn = 1/m(Din + Do)Fe \times \alpha$

Where: Bn = Necessary Bandwidth
  m = Modulation Efficiency = 4 for 16QAM
  Din = Input Data Rate = 24.9 MB/s
  Do = Overhead Data = 2.0MB/s
  Fe = Forward Error Correction = 204/184 (Reed Solomon)
  α = Filter Roll Off Factor = 1.35

$Bn = 1/4(24.9 + 2)204/184 \times 1.35$
$Bn = 1/4(26.9)1.1 \times 1.35$
$Bn = (6.725)1.1 \times 1.35$
$Bn = 7.397 \times 1.35$
$Bn = 9.986 MHz$

Sincerely,

RF Technology, Inc.
John Timm
Technical Sales Manager