

**MOTOROLA**

Date: June 11, 1999.

Mr. George Tannahill
Federal Communications Commission Laboratory
Authorization & Evaluation Division
7435 Oakland Mills Road
Columbia, MD 21046

Dear Mr. Tannahill:

Motorola Inc., 8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322, is sending the following information in response to your email correspondence of June 03, 1999 for Certification application with FCC ID: AZ489FT5792 (Confirmation Number: EA93655 and Correspondence Reference Number 8153):

1. In the second paragraph of section 4.2 of the application it is stated that "The four resulting sub channel signals are then combined in frequency division multiplex fashion to produce the composite M-QPSK signal". Hence, D7W appeared more appropriate as we have been treating the sub-channels as channels for the purposes of 47 CFR 2.201(d). In the past we had applied for W7W and your branch elected to change the "W" to "D" indicating that it was felt to be more representative of TDM. At that time we brought attention to the ITU.
2. The definition of necessary bandwidth given in 47 CFR 2.1 was used in specifying the necessary bandwidth. To achieve the desired quality it was desired that the emission designator be specified at a level of attenuation about 26dB below the power level of the sub-channels. This corresponds to a level of 46 dB below the reference level since the sub-channel power is about 20 dB below the reference level. With reference to Figures 6.1, 6.7, and 6.9 some variance is observed, and 20 kHz was chosen as a reasonable value which also is consistent with the Authorized Bandwidth specified in the table of Rule part 90.203 (5). Occupied Bandwidth (99 % power) was measured to be 17.4 kHz
3. Discussions have been held with several members of your branch regarding a Grant of Authorization for trunked radio equipment over a broadened 800 MHz band frequency range. As indicated in the letter which accompanied our application, the purpose was to facilitate foreign authorizations. The first instance of this has already occurred for companion base station equipment with capability to operate over the broadened frequency band or 851-870 MHz (which may only be licensed in the US in the band 851-866 MHz). A letter dated January 22, 1999 from your Acting Branch Chief is attached for reference.

That letter was provided for equipment that had already been authorized rather than for new equipment to be authorized. To properly plan the application for this companion new equipment a meeting was held in February with several members of your branch. It was indicated then by Mr. Knapp that a note could be provided in the Grant to accomplish the same purpose if it were requested (as was done) in a letter accompanying our application, and data was provided (as was done) to verify compliant performance in the extended band as well. Like the base station equipment, this handheld transceiver is compliant only with the 90.210(g) and 90.691 emission masks for which performance data was supplied. Since it is not intended for and cannot meet the emission mask 90.210(h) requirements, data was not supplied for that characteristic.

Consequently, it would seem appropriate that a grant for the broadened frequency range of 806 – 825 MHz be only for the G and EA masks, and not the H mask, and for part 22 as well per the January letter.

4. See response to item 3 above.
5. The analyzer settings to obtain the value of zero dB reference are described in Exhibit 7.2. of the application. For convenience these settings are repeated herein.
 - i) Set the radio for measurement of RF output power using the power test procedure in the service manual which sets the radio transmit at “full training” mode per part 2.989 (h), and attach it to a spectrum analyzer through an attenuator. The analyzer is to be set for peak detection with a video bandwidth of 10 times the resolution bandwidth setting, a span of 100 seconds, and a span of 100 kHz.
 - ii.) Using a 30 kHz resolution bandwidth to assure that essentially all of the transmitted energy is measured, obtain a “rainbow” curve and adjust the analyzer setting so that the crest of the curve lies at the 0 dB reference location. This is portrayed as trace 1 on the analyzer display.

Since the resolution bandwidth used in step 2) exceeds the occupied bandwidth of the emission, the crest of the resulting “rainbow” curve represents the total power of the emission with an error of less than 1%. Subsequent step 3) captures the same emission but with the narrower 300 Hz resolution bandwidth used for the emission mask characteristic which is aligned with the “rainbow” curve crest.

6. Photos are provided as requested in amended Exhibit 9 attached.
7. Please withdraw our request for confidentiality of internal photos.

We trust that this response satisfies your inquiry and serves to ensure that the radio meets FCC requirements. Please contact me at (954) 723-5793 if you require any additional information.

Regards,

Mike Ramnath

FCC Liaison

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