



NEBRASKA CENTER FOR EXCELLENCE IN ELECTRONICS

4740 Discovery Drive
Lincoln, NE 68521
402-472-5880

21 April 2004

RE: Telex Communications
FCC ID: B5D-CPE50MW

Mr Ward:

This letter is in response to your letter date 18 April 2004, below your comments you will find a response in italics.

1. Please note that as schematics are typically held confidential ATCB has no way of procuring them from the FCC. If ATCB certified the product, ATCB still cannot access the schematics unless the application number and the original applicant name is provided. Please provide the schematics for this product or alternately, please provide the necessary information along with a letter from the original applicant that states you have permission to use the schematic.

The schematics have been uploaded.

2. Please note that as block diagrams are typically held confidential ATCB has no way of procuring them from the FCC. If ATCB certified the product, ATCB still cannot access the block diagram unless the application number and the original applicant name is provided. Please provide the block diagram for this product or alternately, please provide the necessary information along with a letter from the original applicant that states you have permission to use the block diagram.

A block diagram was uploaded on 21 April 2004.

3. Please note that all applications must stand on their own merit. Please provide the internal photos for the PCMCIA card. Please provide photos of the PCMCIA card in successive stages of tear down. Please provide photos of both sides of the PCB and components of the PCMCIA card.

Photos of the PCMCIA card have been uploaded for review.

4. Please note that even though the separation distance calculations for this device is less than 20 cm, it is a mobile device requiring 20cm separation. As such the value of S should be calculated at 20cm not the distance where the $1\text{mw}/\text{cm}^2$ occurs. Please show an MPE report giving the value of S at 20cm. Also, please note that the MPE report rf exposure distance statement and the actual statement in the manual do not agree. Please put a minimum separation statement of 20cm in the manual and in the MPE report.

5. In relation to item 4 – Please note that as you have listed the separation distance in the manual as 15.8 cm you have automatically put this device in the portable rf exposure category. Since the power exceed the <20 max power formula in the TCB exclusions list you must either correct the

manual to state at least 20 cm separation is required, or you must perform SAR on the device. Please note that it is the conducted and/or EIRP power that must be used in the formula. This means that the power of this device would be 50mW (19.99dB) plus 18dB or 34.99dBm (over 1 watt). This is significantly over the max 375mw allowed for less than 20cm operation. Please provide either a corrected manual with the corrected 20cm statement or please provide the SAR report for this device.

A revised manual has been uploaded to address items 4 and 5.

6. Please note that the report states that the antenna is integral to the PCMCIA card. However, the theory of operation states, "The transmitter and receiver of the EUT are connected to an 18 dBi patch antenna array within the CPE radome enclosure." How is this done? Is there a physically connection between the PCMCIA antenna and the 18dBi antenna, or is there another connection mechanism. Please adequately explain how this is done and please correct the report to adequately express how this device is used in this application (not how the PCMCIA card was originally certified).

The particular PCMCIA card in question does not have an internal antenna. The original grant for FCC ID: MXF-C900924 shows the unit as being tested with low gain external omni directional antenna. The report has been clarified to state, "this PCMCIA card and coaxial cable are internal to the 2472AA (FCC ID: B5D-CPE50MW)."

7. Please verify that the radiated spurious emissions test in the report was performed with the 18dBi antenna connected and not with just the internal PCMCIA antenna.

All radiated emissions tests were performed with the 18dBi antenna as shown in the test setup photos.

8. Please note that in the radiated emissions table for the transmitter you show readings for frequencies outside the restricted bands as over the limit. Please note that the readings outside the restricted bands only need to be 20dB below the fundamental. Please compare the readings to the correct limits.

The tables in the report have been adjusted to show the limit as 20dB below the fundamental.

9. Please note that the table on page 40 of the report is listed as being the "calculated restricted band values based on based on the measured values from the EUT." What does this mean? It appears as if you have calculated compliance of the restricted bands. Please note that this not allowed. Restricted band compliance for part 15 devices is strictly a measured values as stated in 15.209a and 15.247c. It also appears as if you have made 3 meter radiated emissions measurements. Please explain the chart on page 40 of the report.

The restricted band values are based on the radiated measured values for a given antenna and in comparison with the measured conducted values. The report has been amended to clarify this.

10. Please note that you do not appear to have provided a proper peak conducted or EIRP power for this device. Please note that it is stated to be a 50mw conducted power device. Page 6 of the report states that you derived power measurements from plots 29 through 37. Please note that none of the plots (29 through 37) show the proper resolution or video bandwidths for peak power measurements required by 15.247. Please note that for power measurements using an analyzer the res BW must be wider than the band width of the device or a bandwidth correction factor must

be applied. The video BW must be greater than the Res BW. Alternately a peak power meter can be used. Please note that you do not appear to have used the correct resolution and video bandwidths nor does it appear that you have included a resolution bandwidth correction factor in the peak power measurements. The resolution bandwidth correction factor is $10\log(\text{EUT } 6\text{dBBW}/\text{res BW})$. In this case, $10\log[11\text{m}/1\text{m}]$ or 10dB. Please re-measure the peak conducted power of this device using the proper resolution bandwidth (including any bandwidth correction factor as needed) and the proper video bandwidth (which would be greater than the resolution bandwidth).

The report has been modified to show the EIRP for this product. The power measurements

The following table is a comparison between the measurements in the report and the results using the resolution bandwidth correction factor equation that you provided.

Conducted Power Measurements

	Channel		
	1	5	11
Previous Measured Power	17.2	16.9	16.7
1MHz=RBW=VBW Peak	6.29		5.39
Correction Factor $10\log(6\text{dBBW}/\text{RBW})$	10.41		10.41
Calculated Power	16.70		15.80
Difference	0.50		0.90

	Channel		
	1	5	11
Previous Measured Power	17.2	16.9	16.7
1MHz=RBW 3MHz=VBW Peak	6.72	6.42	6.23
Correction Factor $10\log(6\text{dBBW}/\text{RBW})$	10.41	10.41	10.41
Calculated Power	17.13	16.83	16.64
Difference	0.07	0.07	0.06

The values provided in the report are greater by less than 1dB.

11. Please provide a separate test setup photo exhibit.

The oversight has been corrected and the files uploaded to the ATCB servers.

If there are any further comments please let us know.

Sincerely,



Doug Kramer
Lab Manager
NCEE