

To Reviewing Engineer
Ref.: FCC ID PBKMS010039

2002-03-06
vs/vs
A0135/2002

Replies to Comments covering last 5 points of letter "ATCB Comment_021302.pdf"

Based on the comments received from ATCB the following new tests have been conducted:

- Radiated emission below 30 MHz using a magnetic loop antenna
- Conducted emission tests following the procedures of ANSI C63.4

The results of the measurements have been incorporated in the DELTA test report DANAK 196060, Project no. K222371-7 titled "Emission tests to FCC requirements of Precise Bio-Access(tm) Mifare DC/W Reader".

This report is part of the exhibits for FCC ID PBKMS010039.

The updated report is based on the following:

Comment	The test results given in Annex 4 show both a level and transducer. Please confirm that the transducer value is already calculated/corrected for in the Level shown in the 2nd column.
Reply	We confirm that the transducer value is already calculated/corrected for in the Level shown in the 2nd column.
Comment	The conducted emissions setup is not consistent with the procedure specified by ANSI C63.4 (i.e. location of LISN, presence of vertical ground plane, etc.).
Reply	The conducted measurements have been re-tested to be in compliance with the ANSI C63.4 requirements. The test results are incorporated in the referenced report.
Comment	The 9 meter and 30 meter tests show the unit positioned on its side, while typically the unit would be installed in an upright position. Please explain.
Reply	The unit was turned and twisted until maximum field strength was measured. Final measurements were performed with the EUT in this worst-case position.

DELTA
Danish Electronics,
Light & Acoustics

Venlighedsvej 4
2970 Hørsholm
Denmark

Tel. (+45) 72 19 40 00
Fax (+45) 72 19 40 01
www.delta.dk
VAT DK 12275110

In the updated report, however, where final measurements at the 30 m distance is performed using a loop antenna, the maximum level is reached when the unit is in an upright position

Comment ANSI C63.4 (as referenced by 15.31) specifies frequency stability to be performed in 10 degree increments.

Data was not provided for -10, 0, 10, 30, and 40 degree C. Please provide either the missing test data or provide a notation on the data page with a description of the engineering judgement used for not supplying this data.

Reply The EUT is normally operated continuously and can therefore be energised while inside the test chamber. During the tests the EUT was left on during temperature changes and switched off when extreme high and low temperatures were reached. Left off for 10 min and then switched on. Frequency measurements were performed at switch on and again two, five and ten minutes after that.

An attached spectrum analyzer configured in max-hold mode is monitoring the carrier output during the temperature transition periods. In this way it can be seen if the frequency during temperature transitions makes any changes or jumps that exceeds the frequency at the extreme temperatures.

To increase accuracy a marker from an external RF generator is introduced.

In this way it can be confirmed that the unit is within specifications in the complete temperature span - 20 degC to + 50 degC.

Comment For tests below 30 MHz, the FCC only allows use of the magnetic loop antenna. The list of test instruments includes both a rod antenna and loop antenna. Please confirm that the loop antenna was used for all measurements below 30 MHz. Please explain the use of the rod antenna.

Reply The radiated emission from the EUT at frequencies below 30 MHz have been re-tested using a magnetic loop antenna. The results are incorporated in the referenced DELTA report.

Respectfully submitted

DELTA



Vagn Sylvest