

# TEST REPORT

## FCC Part 15 Subpart C Section 15.207

## FCC Part 15 Subpart C Section 15.209

## IC RSS-210 Issue 8

## IC RSS-Gen Issue 3

MANUFACTURER'S NAME

Datacard Group  
11111 Bren Road West  
Minnetonka MN 55343

PRODUCT NAME

EX30

MODEL NUMBER(S) TESTED

EX30

SERIAL NUMBER(S) TESTED

---

PRODUCT DESCRIPTION

Card Personalization Equipment with 13.56 MHz RFID

TEST REPORT NUMBER

WC1108904.1

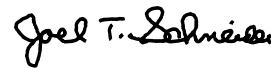
TEST DATE(S)

04-11 October 2011

TÜV SÜD America Inc, as an independent testing laboratory, declares that the equipment tested as specified above conforms to the applicable EMC requirements of FCC Part 15 Subpart C Sections 15.207 "Conducted Limits" and 15.209 "Radiated emission limits; general requirements" and IC RSS-210 "Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment" and IC RSS-Gen "General Requirements and Information for the Certification of Radiocommunication Equipment".

It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical characteristics. Any modifications necessary for compliance made during testing on the above mentioned date(s) must be implemented in all production units for compliance to be maintained.

Date: 28 October 2011



Location: Taylors Falls MN  
USA

Robert J Behringer  
EMC Engineer

Joel T Schneider  
Senior EMC Engineer

Not Transferable

# EMC TEST REPORT

Test Report No. WC1108904.1 Date of issue: 28 October 2011

Product Name EX30

Model(s) Tested EX30

Serial No(s) Tested ---

Product Description Card Personalization Equipment with 13.56 MHz RFID

Manufacturer Datacard Group  
11111 Bren Road West  
Minnetonka MN 55343

Test Result

Positive

Negative

*TÜV SÜD America Inc reports apply only to the specific samples tested under stated test conditions. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. TÜV SÜD America Inc shall have no liability for any deductions, inferences or generalizations drawn by the client or others from TÜV SÜD America Inc issued reports.*

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*TÜV SÜD America Inc and its professional staff hold government and professional organization certifications and are members of AAMI, ACIL, AEA, ANSI, IEEE, NARTE, and VCCI.*

## REVISION RECORD

REVISION	TOTAL NUMBER OF PAGES	DATE	DESCRIPTION
	27	28 October 2011	Initial Release



## DIRECTORY

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## EMC TEST REGULATIONS:

The tests were performed according to the following regulations:

FCC Part 15 Subpart C Section 15.207 Paragraph (a)

FCC Part 15 Subpart C Section 15.209 Paragraphs (a), (c), (f)

IC RSS-210 Issue 8 Section 2.5

IC RSS-Gen Issue 3 Sections 4.6.1, 7.2.5

## ENVIRONMENTAL CONDITIONS IN THE LAB

	<u>Actual</u>
Temperature:	: 23°C
Atmospheric pressure	: 98kPa
Relative Humidity	: 48%

## POWER SUPPLY UTILIZED

Power supply system : 110/220 V / 60 Hz

## TEST EQUIPMENT

All measurement instrumentation is traceable to the National Institute of Standards and Technology and is calibrated according to internal procedure.

## MEASUREMENT UNCERTAINTY

The test system for conducted emissions is defined as the LISN, tuned receiver or spectrum analyzer, and coaxial cable. The test system has a measurement uncertainty of  $\pm 1.8$  dB. The test system for radiated emissions is defined as the antenna, the pre-amplifier, the spectrum analyzer and the coaxial cable. The test system has a measurement uncertainty of  $\pm 4.8$  dB. All measurement instrumentation is traceable to the National Institute of Standards and Technology and is calibrated according to internal procedure.

## SIGN EXPLANATIONS

- not applicable
- applicable

## General field strength limits 0.009 – 30 MHz

FCC 15.209(a), FCC 15.209(c), IC RSS-210 2.5, RSS-Gen 7.2.5

### Test summary

The requirements are: ■ - MET □ - NOT MET

Testing was performed in accordance with the test procedure of ANSI C63.4 2003, clause 8.2.2.

Maximum field strength of the fundamental is 27 dB $\mu$ V/m\* or 22.3  $\mu$ V/m at 30 meters at 13.56 MHz. Minimum margin of compliance of the fundamental is 2 dB. No spurious emissions were detected. No unwanted emissions exceed the level of the fundamental.

\*Extrapolated levels using a 40 dB/decade falloff as indicated by the measurements.

### Test location

- - Wild River Lab Large Test Site (Open Area Test Site)
- - Wild River Lab Small Test Site (Open Area Test Site)

### Test distance

- - 1 meter
- - 3 meters
- - 10 meters

### Test equipment

TUV ID	Model	Manufacturer	Description	Serial	Cal Due
WRLE02517	HFH2-Z2	Polarad	Loop Antenna	879285/036	18-Aug-12
OWLE02532	ESHS-10	Rohde & Schwarz	EMI Receiver	828178/006	06-Nov-11

### Test limit

Frequency (MHz)	Field strength $\mu$ V/m	Measurement distance (m)
0.009-0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30	30	30

The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

### Test Data, dB $\mu$ V/m

Frequency (MHz)	Detector	Distance 1 m	Distance 3 m	10 m	dB $\mu$ V/m 30 m	$\mu$ V/m 30 m	Limit dB $\mu$ V/m 30 m	Limit $\mu$ V/m 30 m	Delta (dB)
13.56	QP		65	47	27*	22.3*	29.5	30	-2

\* Extrapolated value using 40 dB per decade fall off as indicated by measurements

nf = noise floor

No other signals detected up to 30 MHz.

Radiated emissions in the frequency range of 10 kHz to 30 MHz, including the fundamental transmit signal, are measured using a receiver capable of quasi-peak/average/peak measurements and a magnetic loop antenna. The transmitter and loop antenna are rotated through 3 orthogonal axes in order to determine the maximum emission levels. If the signal cannot be measured at the specified limit distance, measurements are recorded at multiple distances nearer to the device and the final level mathematically extrapolated. Measurements between 150 kHz and 30 MHz are made with a 9 kHz resolution bandwidth. Measurements between 9 kHz and 150 kHz are made with a 200 Hz resolution bandwidth.

## Radiated Emissions 30 - 1000 MHz

FCC 15.209(c), FCC 15.209(f), IC RSS-210 2.5, RSS-Gen 7.2.5

### Test summary

The requirements are: ■ - MET □ - NOT MET

Testing was performed in accordance with the test procedure of ANSI C63.4 2003, clause 8.3. Maximum spurious emission below 135.6 MHz or in the restricted bands is 42.72 dB $\mu$ V/m (136  $\mu$ V/m) at 3 meters at 284.7 MHz.

Minimum margin of compliance is 3.2 dB. Maximum spurious emission of incorporated digital device above 135.6 MHz and below 1000 MHz is 38.28 dB $\mu$ V/m at 10 meters at 244 MHz. Minimum margin of compliance is 8.1 dB. No radiated emissions were detected from the receiver.

### Test limits

#### Transmitter and 15.205 restricted bands

Frequency (MHz)	Field strength ( $\mu$ V/m)	Field strength (dB $\mu$ V/m)	Measurement distance (m)
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
Above 960	500	54	3

#### Incorporated digital device/Receiver – Class A device

Frequency (MHz)	Field strength (dB $\mu$ V/m)	Field strength (dB $\mu$ V/m)	Measurement distance (m)
30 - 88	90	39	10
88 - 216	150	43.5	10
216 - 960	210	46.4	10
Above 960	300	49.5	10

The emission limits shown in the above tables are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector. When average radiated emission measurements are specified in this part, including average emission measurements below 1000 MHz, there also is a limit on the peak level of the radio frequency emissions. Unless otherwise specified, e.g., see §§ 15.250, 15.252, 15.255, and 15.509–15.519, the limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test. Radiated emissions from the EUT are measured in the frequency range of 30 to 1000 MHz using a spectrum analyzer and appropriate broadband linearly polarized antennas. Measurements between 30 MHz and 1000 MHz are made with a 120 kHz / 6 dB bandwidth and quasi-peak detection and measurements above 1000 MHz are made with a 1 MHz RBW/VBW / 6 dB bandwidth and peak detection, 1 MHz RBW/ 10 Hz VBW for average detection. Table top equipment is placed on a non-conductive support 80 cm above the ground plane.

Interface cables that are closer than 40 centimeters to the ground plane are bundled in the center in a serpentine fashion so they are at least 40 centimeters from the ground plane. Cables to simulators/testers (if used in this test) are routed through the center of the table and to a screen room located outside the test area. The antenna is positioned 3, 10 or 30 meters horizontally from the EUT. To locate maximum emissions from the test sample the antenna is varied in height from 1 to 4 meters, measurement scans are made with both horizontal and vertical antenna polarizations and the EUT is rotated 360 degrees. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB / decade (inverse linear-distance for field strength measurements).

**Test location**

- - Wild River Lab Large Test Site (Open Area Test Site)

**Test distance**

- - 3 meters >1 GHz, <1 GHz related to transmitter up to 135.6 MHz, restricted bands)
- - 10 meters < 1 GHz (signals not related to transmitter/restricted bands)

**Test Equipment**

TUV ID	Model	Manufacturer	Description	Serial	Cal Due
OWLE03202	EM-6917B	Electro-Metrics	Biconicalog Periodic	101	13-Jun-12
WRLE02684	85650A	Hewlett-Packard	Quasi-Peak Adapter	2521A01006	10-Jun-12
NBLE03196	8566B	Hewlett-Packard	Spectrum Analyzer	2240A01856	19-Oct-11
NBLE03195	85662A	Hewlett-Packard	Analyzer Display	2648A13518	19-Oct-11
WRLE10616	ZHL-1042J	Mini-Circuits	Preamplifier 10 - 3000 MHz	QA0746005	Code B 25-Oct-11
WRLE02670	8447D	Hewlett-Packard	Preamplifier	2443A03954	Code B 17-Jan-12
WRLE02517	HFH2-Z2	Polarad	Loop Antenna	879285/036	18-Aug-12
OWLE02532	ESHS-10	Rohde & Schwarz	EMI Receiver	828178/006	06-Nov-11

Cal Code B = Calibration verification performed internally.

**Test data** - See following pages

**Measurement summary for limit1: FCC 15.209 to 135.6MHz (Qp) and restricted bands of 15.205 – 3 meters**

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC 15.209	FINAL (uV / m)
284.754 MHz	56.35 Qp	1.56 / 12.17 / 27.37 / 0.0	42.72	H / 1.00 / 265	-3.28	136
162.714 MHz	53.8 Qp	1.21 / 8.24 / 27.78 / 0.0	35.46	H / 1.00 / 265	-8.04	
108.474 MHz	49.29 Qp	0.98 / 8.39 / 27.71 / 0.0	30.95	V / 1.00 / 323	-12.55	

For incorporated digital device

**Measurement summary for limit1: FCC-A <1GHz 10m (Qp)**

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC-A <1GHz 10m
244.076 MHz	52.7 Qp	2.3 / 11.08 / 27.8 / 0.0	38.28	V / 1.00 / 95	-8.12
284.762 MHz	50.25 Qp	2.46 / 12.17 / 27.37 / 0.0	37.52	V / 1.00 / 90	-8.88
257.654 MHz	51.0 Qp	2.34 / 11.51 / 27.66 / 0.0	37.19	V / 1.00 / 90	-9.21
216.955 MHz	52.21 Qp	1.41 / 10.22 / 27.78 / 0.0	36.07	H / 2.80 / 270	-10.33
271.208 MHz	47.95 Qp	2.38 / 11.95 / 27.51 / 0.0	34.76	V / 1.00 / 90	-11.64

No other signals within 10 dB of the limit up to 6 GHz

## Occupied bandwidth

### RSS-Gen 4.6.1

#### Test summary

The requirements are:  - MET  - NOT MET

Test was performed in accordance with the article "The Measurement of Occupied Bandwidth" by Industry Canada's certification bureau.

Occupied bandwidth = 2.95 kHz

#### Test location

- Wild River Lab Large Test Site (Open Area Test Site)
- Wild River Lab Small Test Site (Open Area Test Site)

#### Test equipment

TUV ID	Model Number	Manufacturer	Description	Serial Number	Cal Due
WRLE02517	HFH2-Z2	Polarad	Loop Antenna	879285/036	18-Aug-12
WRLE03371	E4440A	Agilent	Spectrum Analyzer	MY43362222	06-Sep-12

Cal Code B = Calibration verification performed internally. Cal Code Y = Calibration not required when used with other calibrated equipment.

#### Test limit

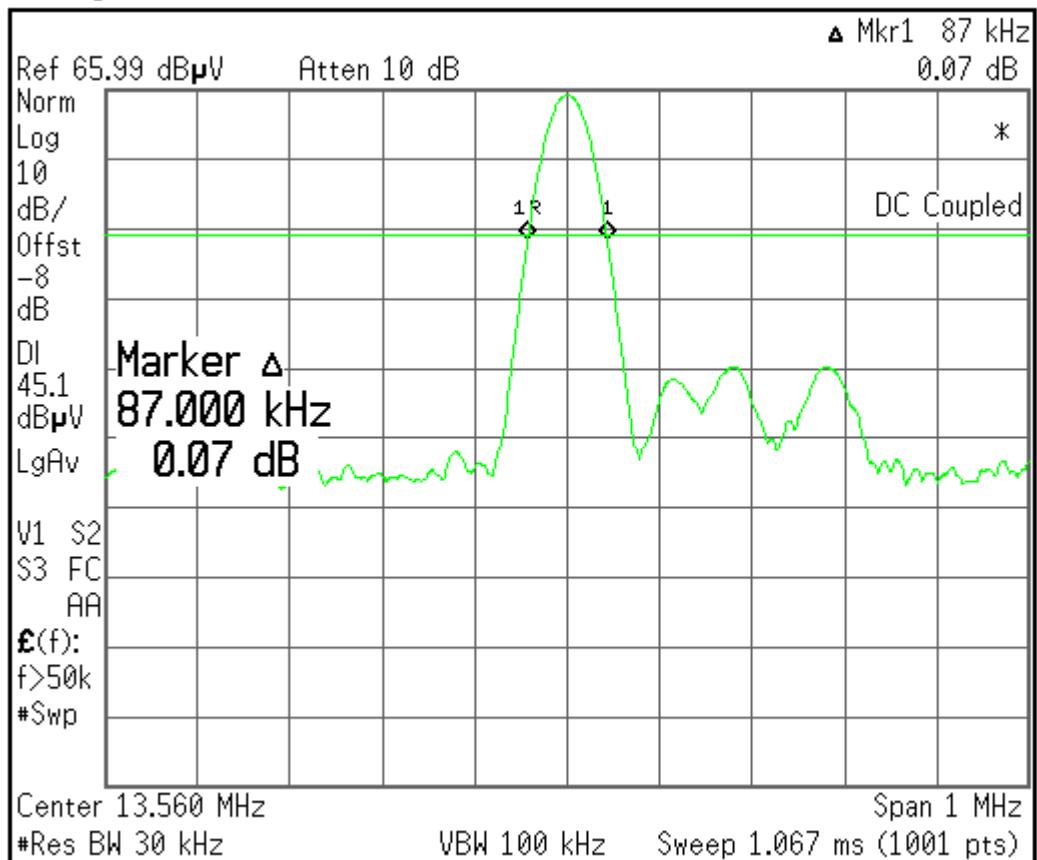
No limit specified

#### Test data

See following pages

99% Occupied bandwidth  
1 of 2

 Agilent 09:06:48 Oct 5, 2011

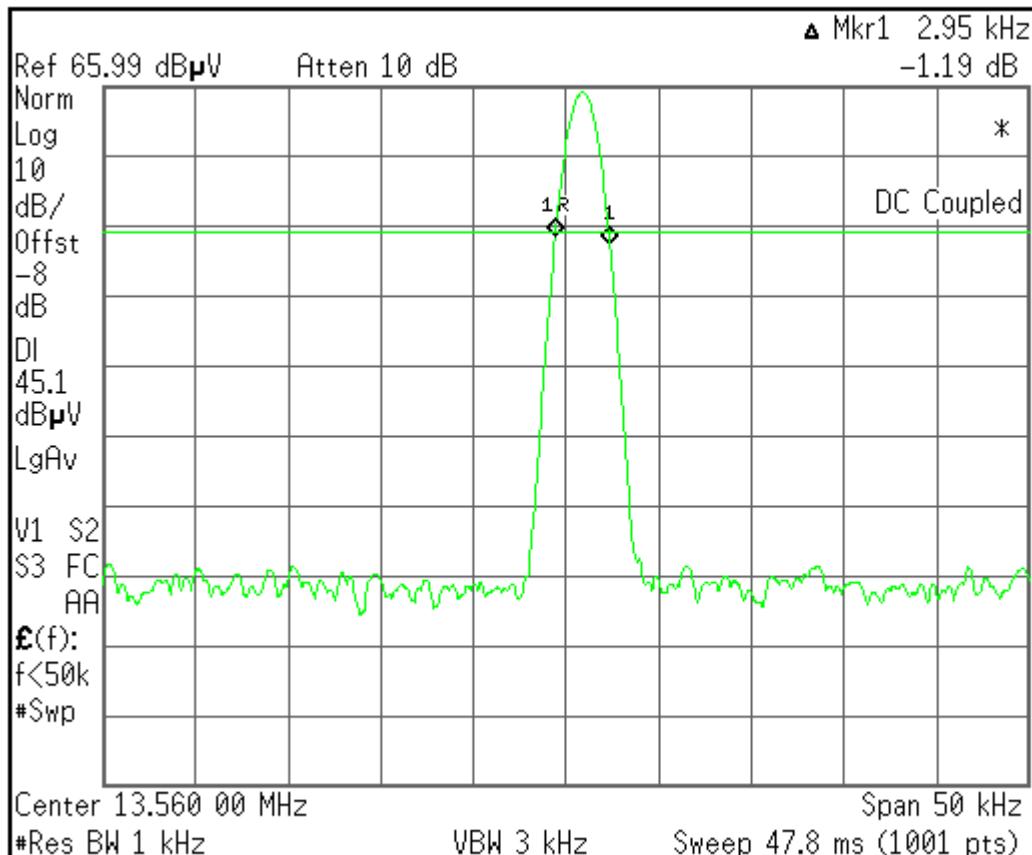


- File**
- Catalog**
- Save**
- Load**
- Delete**
- Copy**
- Rename**
- More**  
1 of 2

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99% Occupied bandwidth  
2 of 2

\* Agilent 09:11:17 Oct 5, 2011



- File
- Catalog
- Save
- Load
- Delete
- Copy
- Rename
- More 1 of 2

## Conducted Emissions - AC Power Lines

FCC 15.207(a), IC RSS-Gen 7.2.4

### Test summary

The requirements are:  - MET  - NOT MET

Testing was performed in accordance with the test procedure of ANSI C63.4 2003, clause 7.2

Minimum margin of compliance is 13.3 dB at 440.3 kHz – quasi-peak

Minimum margin of compliance is 12.1 dB at 440.3 kHz – average

### Test location

- Wild River Lab Large Test Site (Open Area Test Site)

- Wild River Lab Small Test Site (Open Area Test Site)

### Test equipment used:

TUV ID	Model	Manufacturer	Description	Serial	Cal Due
WRLE02079	3825/2	Electro-Mechanics (EMCO)	50 Ω LISN	1329	Code B 07-Mar-12
OWLE02532	ESHS-10	Rohde & Schwarz	EMI Receiver	828178/006	06-Nov-11

Cal Code B = Calibration verification performed internally. Cal Code Y = Calibration not required when used with other calibrated equipment.

### Test limits, dB $\mu$ V

Frequency (MHz)	Quasi Peak	Average
0.15 - 0.5	66 - 56*	56 - 46*
0.5 - 5	56	46
5 - 30	60	50

\*Decreases with the logarithm of the frequency

Conducted emissions on the 50 Hz and/or 60 Hz power interface of the EUT are measured in the frequency range of 150 kHz to 30 MHz. The measurements are performed using a receiver, which has CISPR characteristic bandwidth (9 kHz resolution bandwidth) and quasi-peak/average detection, and a Line Impedance Stabilization Network (LISN), with 50 Ω/50  $\mu$ H (CISPR 16) characteristics. Table top equipment is placed on a non-conducting table 80 centimeters above the floor and is positioned 40 centimeters from the vertical ground plane (wall) of the screen room. In some cases, a pre-scan using a spectrum analyzer is initially performed on the units comprising the system under test to locate the highest emissions.

### Test data

See following pages

### Measurement summary for limit1: EN55022 B Qp (Qp)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV)	EUT Lead	DELTA1 EN55022 B Qp
440.32 kHz	43.46 Qp	0.12 / 0.1 / 0.0 / 0.0	43.68	N	-13.37
150.0 kHz	51.18 Qp	0.05 / 0.2 / 0.0 / 0.0	51.43	N	-14.57
199.73 kHz	47.55 Qp	0.07 / 0.17 / 0.0 / 0.0	47.79	N	-15.83
212.29 kHz	46.62 Qp	0.08 / 0.16 / 0.0 / 0.0	46.85	L1	-16.26
2.022 MHz	39.29 Qp	0.33 / 0.1 / 0.0 / 0.0	39.72	L1	-16.28
431.14 kHz	39.93 Qp	0.12 / 0.1 / 0.0 / 0.0	40.15	L1	-17.08
160.0 kHz	47.35 Qp	0.06 / 0.19 / 0.0 / 0.0	47.6	N	-17.86
1.862 MHz	36.28 Qp	0.31 / 0.1 / 0.0 / 0.0	36.69	L1	-19.31
622.81 kHz	36.19 Qp	0.15 / 0.1 / 0.0 / 0.0	36.44	N	-19.56
1.76 MHz	34.6 Qp	0.31 / 0.1 / 0.0 / 0.0	35.01	N	-20.99
26.088 MHz	37.3 Qp	1.25 / 0.32 / 0.0 / 0.0	38.88	N	-21.12
26.869 MHz	36.09 Qp	1.3 / 0.34 / 0.0 / 0.0	37.73	N	-22.27
2.121 MHz	32.57 Qp	0.34 / 0.1 / 0.0 / 0.0	33.01	L1	-22.99
365.05 kHz	35.39 Qp	0.11 / 0.1 / 0.0 / 0.0	35.6	L1	-23.01
902.88 kHz	32.65 Qp	0.18 / 0.1 / 0.0 / 0.0	32.93	L1	-23.07
1.015 MHz	31.92 Qp	0.2 / 0.1 / 0.0 / 0.0	32.22	L1	-23.78
1.377 MHz	30.7 Qp	0.25 / 0.1 / 0.0 / 0.0	31.05	L1	-24.95
2.473 MHz	30.2 Qp	0.36 / 0.1 / 0.0 / 0.0	30.66	N	-25.34
26.894 MHz	32.52 Qp	1.3 / 0.34 / 0.0 / 0.0	34.16	N	-25.84
27.227 MHz	31.92 Qp	1.31 / 0.34 / 0.0 / 0.0	33.57	N	-26.43
13.56 MHz	31.35 Qp	0.81 / 0.2 / 0.0 / 0.0	32.36	N	-27.64
11.14 MHz	30.92 Qp	0.71 / 0.2 / 0.0 / 0.0	31.83	L1	-28.17
1.486 MHz	26.02 Qp	0.27 / 0.1 / 0.0 / 0.0	26.39	L1	-29.61
10.7 MHz	28.92 Qp	0.7 / 0.2 / 0.0 / 0.0	29.82	N	-30.18
29.058 MHz	26.5 Qp	1.34 / 0.38 / 0.0 / 0.0	28.22	N	-31.78

### Measurement summary for limit2: EN55022 B Avg (Av)

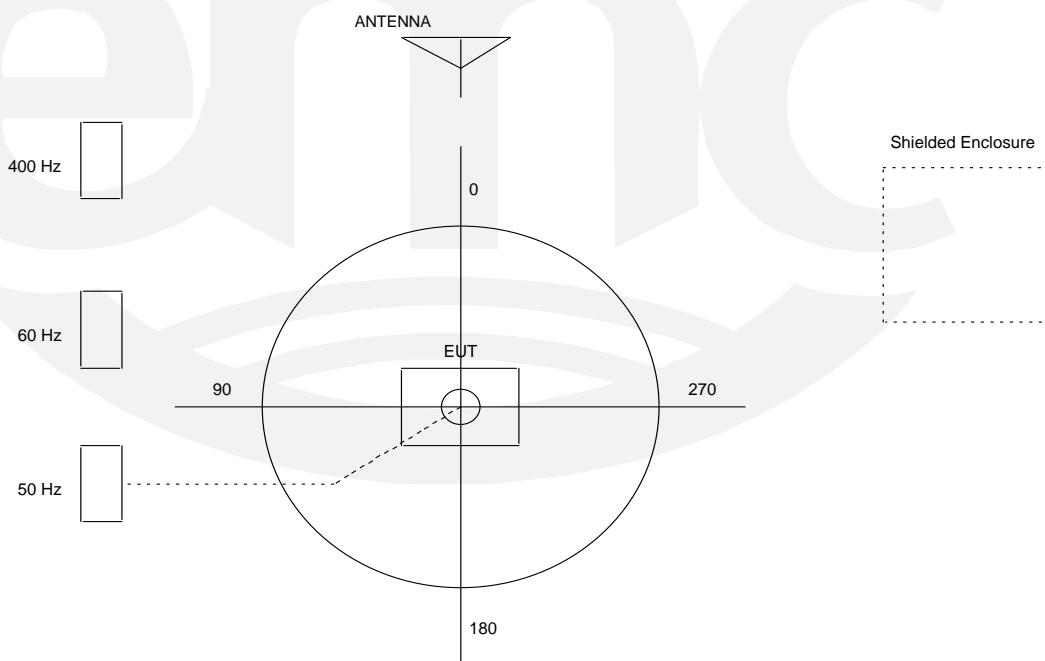
FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV)	EUT Lead	DELTA2 EN55022 B Avg
440.32 kHz	34.67 Av	0.12 / 0.1 / 0.0 / 0.0	34.89	L1	-12.16
199.73 kHz	38.6 Av	0.07 / 0.17 / 0.0 / 0.0	38.84	N	-14.78
150.0 kHz	39.71 Av	0.05 / 0.2 / 0.0 / 0.0	39.96	L1	-16.04
160.0 kHz	39.11 Av	0.06 / 0.19 / 0.0 / 0.0	39.36	N	-16.1
431.14 kHz	30.18 Av	0.12 / 0.1 / 0.0 / 0.0	30.4	L1	-16.83
622.81 kHz	27.16 Av	0.15 / 0.1 / 0.0 / 0.0	27.41	L1	-18.59
365.05 kHz	29.23 Av	0.11 / 0.1 / 0.0 / 0.0	29.44	N	-19.17
26.088 MHz	28.26 Av	1.25 / 0.32 / 0.0 / 0.0	29.84	N	-20.16
13.56 MHz	28.67 Av	0.81 / 0.2 / 0.0 / 0.0	29.68	N	-20.32
1.015 MHz	25.19 Av	0.2 / 0.1 / 0.0 / 0.0	25.49	L1	-20.51
26.869 MHz	27.61 Av	1.3 / 0.34 / 0.0 / 0.0	29.25	N	-20.75
902.88 kHz	22.97 Av	0.18 / 0.1 / 0.0 / 0.0	23.25	N	-22.75
1.862 MHz	22.76 Av	0.31 / 0.1 / 0.0 / 0.0	23.17	L1	-22.83
2.121 MHz	22.54 Av	0.34 / 0.1 / 0.0 / 0.0	22.98	L1	-23.02
26.894 MHz	25.16 Av	1.3 / 0.34 / 0.0 / 0.0	26.8	N	-23.2
1.377 MHz	21.96 Av	0.25 / 0.1 / 0.0 / 0.0	22.31	L1	-23.69
27.227 MHz	24.65 Av	1.31 / 0.34 / 0.0 / 0.0	26.3	N	-23.7
2.022 MHz	21.58 Av	0.33 / 0.1 / 0.0 / 0.0	22.01	L1	-23.99
1.76 MHz	21.18 Av	0.31 / 0.1 / 0.0 / 0.0	21.59	L1	-24.41
10.7 MHz	23.73 Av	0.7 / 0.2 / 0.0 / 0.0	24.63	N	-25.37
1.486 MHz	19.53 Av	0.27 / 0.1 / 0.0 / 0.0	19.9	L1	-26.1
2.473 MHz	19.14 Av	0.36 / 0.1 / 0.0 / 0.0	19.6	L1	-26.4
11.14 MHz	22.48 Av	0.71 / 0.2 / 0.0 / 0.0	23.39	N	-26.61
15.242 MHz	21.51 Av	0.89 / 0.2 / 0.0 / 0.0	22.6	N	-27.4
29.058 MHz	19.48 Av	1.34 / 0.38 / 0.0 / 0.0	21.2	N	-28.8

## TEST SETUP FOR EMISSIONS TESTING

### WILD RIVER LAB Large Test Site

#### Notes:

1. Items shown in dotted lines are located on the floor below the test area. It is 5 meters vertically from the ground floor to the test area.
2. 50 Hz, 60 Hz, and 400 Hz are power panels for alternating current.
3. The antenna may be positioned horizontally 3, 10 or 30 meters from the center of the turntable.
4. The circle is a 6.7 meter diameter turntable.
5. A ground plane is in the plane of this sheet.
6. The test sample is shown in the azimuthal position representing zero degrees.



Test-setup photo(s):  
General Field Strength Limits 0.009 – 30 MHz



Test-setup photo(s):  
Radiated Emissions 30 - 1000 MHz



Test-setup photo(s):  
Radiated Emissions 30 - 1000 MHz



Test-setup photo(s):  
Conducted Emissions, AC lines, 150 kHz - 30 MHz



## Equipment Under Test (EUT) Test Operation Mode:

**The device under test was operated under the following conditions during immunity testing :**

- Standby
- Test program (H - Pattern)
- Test program (color bar)
- Test program (customer specific)
- Practice operation
- Normal operating mode

## Configuration of the device under test:

- See Appendix A and test setup photos
- See Product Information Form(s) in Appendix B

## DEVIATIONS FROM STANDARD:

None.

## GENERAL REMARKS:

None

### Modifications required to pass:

- None
- As indicated on the data sheet(s)

### Test Specification Deviations: Additions to or Exclusions from:

- None
- As indicated in the Test Plan

## SUMMARY:

The requirements according to the technical regulations are

- met and the device under test does fulfill the general approval requirements.
- **not** met and the device under test does **not** fulfill the general approval requirements..

EUT Received Date: 04 October 2011

Condition of EUT: Normal

Testing Start Date: 04 October 2011

Testing End Date: 11 October 2011

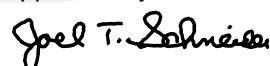
## TÜV SÜD AMERICA INC

Tested by:



Robert J Behringer  
EMC Engineer

Approved by:



Joel T Schneider  
Senior EMC Engineer

## Appendix A

### Constructional Data Form



## Form



### EMC Test Plan and Constructional Data Form

PLEASE COMPLETE THIS DOCUMENT IN FULL, ENTERING N/A IF THE FIELD IS NOT APPLICABLE. IF TESTING RESULTS IN MODIFICATIONS TO THE EQUIPMENT, PLEASE SUBMIT A REVISED TP/CDF INDICATING THOSE MODIFICATIONS.  
**NOTE: This information will be input into your test report as shown below. Press the F1 key at any time to get HELP for the current field selected.**

Company: Datacard Group  
Address: 11111 Bren Rd W  
Minnetonka, Mn 55343  
  
Contact: Dale Hallstrom Position: Sr Principal Engineer  
Phone: 952-988-1913 Fax:  
E-mail Address: dale\_hallstrom@datacard.com

#### General Equipment Description -- **NOTE: This information will be input into your test report as shown below.**

EUT Description Card Personalization Equipment  
EUT Name EX 30  
Model No.: EX 30 Serial No.:  
Product Options:  
Configurations to be tested: OAK Embosser with flipper, indent and topper

#### Equipment Modification (If applicable, indicate modifications since EUT was last tested. If modifications are made during this testing, submit revised TP/CDF after testing is complete.)

Modifications since last test: none  
Modifications made during test:

#### Test Objective(s): Please indicate the tests to be performed, entering the applicable standard(s) where noted.

<input checked="" type="checkbox"/> EMC Directive 89/336/EEC (EMC) Std: EN55022, EN55024, and Flicker/Harmonic	<input checked="" type="checkbox"/> FCC: Class <input checked="" type="checkbox"/> A <input type="checkbox"/> B Part 15b <input checked="" type="checkbox"/> VCCI: Class <input checked="" type="checkbox"/> A <input type="checkbox"/> B
<input type="checkbox"/> Machinery Directive 89/392/EEC (EMC) Std:	<input type="checkbox"/> BSMI: Class <input type="checkbox"/> A <input type="checkbox"/> B <input checked="" type="checkbox"/> Canada: Class <input checked="" type="checkbox"/> A <input type="checkbox"/> B
<input type="checkbox"/> Medical Device Directive 93/42/EEC (EMC) Std:	<input checked="" type="checkbox"/> Australia: Class <input checked="" type="checkbox"/> A <input type="checkbox"/> B <input checked="" type="checkbox"/> Other: Korea, R&TTE, EN300 330, FCC Part 15c, see test matrix PX30_EX30_CE870_EMC_test_matrix v1.5.xls
<input type="checkbox"/> Vehicle Directive 72/245/EEC (EMC) Std:	
<input type="checkbox"/> FDA Reviewers Guidance for Premarket Notification Submissions (EMC)	

#### Third Party Certification, if applicable (\*Signature on Page 6 Required)

<input type="checkbox"/> Attestation of Conformity (AoC)* <input type="checkbox"/> Certificate of Conformity (CoC)* Protection Class (N/A for vehicles) (Press F1 when field is selected to show additional information on Protection Class.)	<input type="checkbox"/> EMC Certification (used with Octagon Mark)* <input checked="" type="checkbox"/> Compliance Document* <input checked="" type="checkbox"/> Class I <input type="checkbox"/> Class II <input type="checkbox"/> Class III
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## Form



### EMC Test Plan and Constructional Data Form

FCC / TCB Certification  
 E-Mark Certification

Industry Canada / FCB Certification  
 Taiwan Certification

#### Attendance

Test will be:  Attended by the customer  Unattended by the customer

#### Failure - Complete this section if testing will not be attended by the customer.

If a failure occurs, TÜV America should:

- Call contact listed above, if not available then stop testing. (After hrs phone): \_\_\_\_\_  
 Continue testing to complete test series.  
 Continue testing to define corrective action.  
 Stop testing.

#### EUT Specifications and Requirements

Length: \_\_\_\_\_ Width: \_\_\_\_\_ Height: \_\_\_\_\_ Weight: \_\_\_\_\_

#### Power Requirements

*Regulations require testing to be performed at typical power ratings in the countries of intended use. (i.e., European power is typically 230 VAC 50 Hz or 400 VAC 50 Hz, single and three phase, respectively)*

Voltage: 100-240 VAC (If battery powered, make sure battery life is sufficient to complete testing.)

# of Phases: 1

Current  
(Amps/phase(max)): 3.5 Current  
(Amps/phase(nominal)): \_\_\_\_\_

Other 50 - 60 Hz

#### Other Special Requirements

#### Typical Installation and/or Operating Environment

(ie. Hospital, Small Business, Industrial/Factory, etc.)  
Industrial

#### EUT Power Cable

Permanent OR  Removable Length (in meters): \_\_\_\_\_  
 Shielded OR  Unshielded  
 Not Applicable

## Form



### EMC Test Plan and Constructional Data Form

Type	EUT Interface Ports and Cables				Qty	Shielding		Termination	Connector Type	Port Termination	Length tested (in meters)	Removable	Permanent							
	Analog	Digital	During Test			Yes	No													
			Active	Passive																
<b>EXAMPLE:</b> RS232	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Foil over braid	Coaxial	Metallized 9-pin D-Sub	Characteristic Impedance	6	<input checked="" type="checkbox"/>	<input type="checkbox"/>						
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## Form



### EMC Test Plan and Constructional Data Form

#### **EUT Software.**

Revision Level:

Description:

**Equipment Under Test (EUT) Operating Modes to be Tested** -- list the operating modes to be used during test. It is recommended the equipment be tested while operating in a typical operation mode. FCC testing of personal computers and/or peripherals requires that a simple program generate a complete line of upper case H's. Provide a general description of all software, firmware, and PLD algorithms used in the equipment. List all code modules as described above, with the revision level used during testing. Consult with your TÜV Product Service Representative if additional assistance is required.

1. RFID on, all motors in simulate mode with no card and no supplies
- 2.
- 3.

**Equipment Under Test (EUT) System Components** -- List and describe all components which are part of the EUT. For FCC & Taiwan testing a minimum configuration is required. (ie. Mouse, Printer, Monitor, External Disk Drive, Motherboard, etc)

Description	Model #	Serial #	FCC ID #

## Form



### EMC Test Plan and Constructional Data Form

**Support Equipment --** List and describe all support equipment which is not part of the EUT. (i.e. peripherals, simulators, etc)  
This information is required for FCC & Taiwan testing.

Description	Model #	Serial #	FCC ID #

#### Oscillator Frequencies

Frequency	Derived Frequency	Component # / Location	Description of Use
264 Mhz		MPC8308	processor
132 Mhz		Memory	DDR2 bus
33 Mhz		iMPC8308	main clock, processor clock
13.56 Mhz		CLRC632	Topper RFID
25 Mhz		Ethernet Phy	

#### Power Supply

Manufacturer	Model #	Serial #	Type
TDK Lambda	DT250PW240 C-001		<input checked="" type="checkbox"/> Switched-mode: (Frequency) <input type="checkbox"/> Linear <input type="checkbox"/> Other: _____
			<input type="checkbox"/> Switched-mode: (Frequency) _____ <input type="checkbox"/> Linear <input type="checkbox"/> Other: _____

#### Power Line Filters

Manufacturer	Model #	Location in EUT

**Form**



**EMC Test Plan and Constructional Data Form**

**Critical EMI Components (Capacitors, ferrites, etc.)**

Description	Manufacturer	Part # or Value	Qty	Component # / Location

**EMC Critical Detail --** Describe other EMC Design details used to reduce high frequency noise.

(PLEASE INSERT "ELECTRONIC SIGNATURE" BELOW IF POSSIBLE)

**Authorization Signatures (Signature Required for Certifications checked on pg 1)**

Customer authorization to perform tests  
according to this test plan.

Date

Dale Hallstrom

10/4/2011

Test Plan/CDF Prepared By (please print)

Date