

TEST RESULT SUMMARY

FCC Part 15 Subpart C Section 15.225

FCC Part 15 Subpart C Section 15.207

RSS-210 Issue 9: August 2016

RSS-Gen Issue 4: November 2014

MANUFACTURER'S NAME	Rimage Corporation 7725 Washington Avenue South Minneapolis MN 55439 USA
PRODUCT NAME	Everest Encore
MODEL NUMBER(S) TESTED	CDPR23B
SERIAL NUMBER(S) TESTED	E065600 Rev. B
PRODUCT DESCRIPTION	Optical Disc Label Printer with 13.56 MHz RFID
TEST REPORT NUMBER	NC72129753.2
TEST DATE(S)	31 July – 2 August, 2017

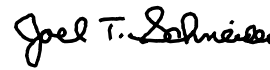
TÜV SÜD America Inc, as an independent testing laboratory, declares that the equipment tested as specified above conforms to the applicable EMC requirements of FCC Part 15 Subpart C §15.225 "Operation within the band 13.110-14.010 MHz" and §15.207 "Conducted limits" and Spectrum Management and Telecommunications Radio Standard Specifications RSS-210 Issue 9 "Licence-exempt Radio Apparatus: Category I Equipment" and RSS-Gen Issue 4 "General Requirements and Information for the Certification of Radio Apparatus".

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.

Issue Date: 10 August 2017



Greg Jakubowski
Senior EMC Technician



Joel T Schneider
Senior EMC Engineer

Not Transferable

EMC TEST REPORT

Test Report No. NC72129753.2 Date of issue: 10 August 2017

Product Names Everest Encore

Model(s) Tested CDPR23B

Serial No(s) Tested E065600 Rev. B

Product Description Optical Disc Label Printer with 13.56 MHz RFID

Manufacturer Rimage Corporation
7725 Washington Avenue South
Minneapolis MN 55439 USA

Issuing Laboratory TÜV SÜD America Inc USA
1775 Old Highway 8 NW, Suite 104
New Brighton MN 55112 - 1891
Phone: 651-631-2487 / Fax: 651-638-0285

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
	31	10 August 2017	Initial Release



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LAB ACCREDITATION:

TÜV SÜD America's New Brighton and Taylors Falls Labs maintain A2LA accreditation to ISO/IEC 17025 for the specific tests listed in A2LA Certificate #2955.11 as Electrical Testing Laboratories located at the following addresses:

Physical Location: 1775 Old Highway 8 NW, Suite 104
New Brighton MN 55112-1891 USA

Satellite Location: 19333 Wild Mountain Road
Taylors Falls MN 55084 USA



A2LA Cert. No. 2955.11

EMC TEST REGULATIONS:

The tests were performed according to the following regulations:

FCC Part 15 Subpart C §15.225
FCC Part 15 Subpart C §15.207
RSS-210 Issue 9: August 2016
RSS-Gen Issue 4: November 2014

ENVIRONMENTAL CONDITIONS IN THE LAB

	<u>Actual</u>
Temperature:	: 22-23°C
Atmospheric pressure	: 99kPa
Relative Humidity	: 54-65%

POWER SUPPLY UTILIZED

Power supply system : 110-220 VAC / 60 Hz

TEST EQUIPMENT TRACEABILITY

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 ± 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 ± 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

Radiated emissions 13.553 – 13.567 MHz FCC §15.225(a), RSS-210 B.6(a)

Test summary

The requirements are: ■ - MET □ - NOT MET

Testing was performed in accordance with the test procedure of ANSI C63.10 2013, clauses 6.4 "Radiated emissions from unlicensed wireless devices below 30 MHz". The worst-case field strength of the 13.56 MHz fundamental was extrapolated to 0.098 µV/m at 30 meters.

Test location

Taylors Falls Lab. Large Test Site (Open Area Test Site)

Test distances

0.3, 1.0, 3.0, 10.0 meters

Test Equipment

TUV ID	Model	Manufacturer	Description	Serial	Cal Date	Cal Due
WRLE02418	6502	EMCO	Loop Antenna	2215	13 Sep 16	14 Sep 17
WRLE02534	ESHS-20	Rohde & Schwarz	EMI Receiver 9kHz-30MHz	837055/003	24-Oct-16	24-Oct-17
WRLE10863	N/A	TÜV SÜD America Inc	Test Companion Software Version 3.4.77	N/A	Code Y	Code Y

Code Y = Calibration not required when used with other calibrated equipment

Limit

15,848 µV/m (84 dBµV/m) at 30 meters.

Test data

List of measurements for run #: 1

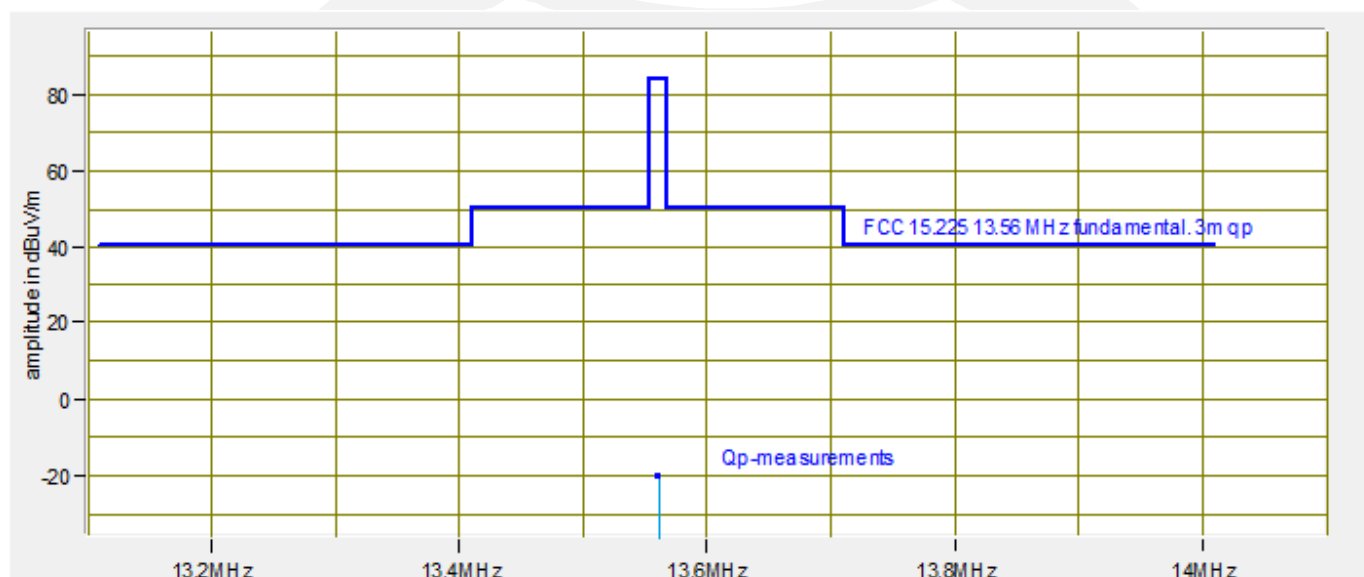
FREQ	LEVEL (dBµV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBµV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC 15.225 13.56 MHz fundamental. 3m qp	DELTA2
Tx set for CW						
Fundamental maximized at 230 degrees azimuth. Loop perpendicular to the path to the DUT						
0.3m distance						
13.56 MHz	44.86 Qp	0.41 / 11.32 / 0.0 / 0.0	56.6	V / 1.00 / 230	-27.4	n/a
1m						
13.56 MHz	24.43 Qp	0.41 / 11.32 / 0.0 / 0.0	36.17	V / 1.00 / 230	-47.83	n/a
3m						
13.56 MHz	6.48 Qp	0.41 / 11.32 / 0.0 / 0.0	18.22	V / 1.00 / 230	-65.78	n/a
10m						
Noise floor						
Extrapolated level at 30m using 38.38dB / decade roll off based on delta from 0.3m to 3.0m						
3m level - 38.38dB						
13.56 MHz	-31.9 Qp	0.41 / 11.32 / 0.0 / 0.0	-20.16	V / 1.00 / 230	-104.16	n/a
Normal modulation. Pulsed every 1 second						
0.3m						
13.56 MHz	41.95 Qp	0.41 / 11.32 / 0.0 / 0.0	53.69	V / 1.00 / 230	-30.31	n/a
1m						
13.56 MHz	21.73 Qp	0.41 / 11.32 / 0.0 / 0.0	33.47	V / 1.00 / 230	-50.53	n/a
3m						
13.56 MHz	4.3 Qp	0.41 / 11.32 / 0.0 / 0.0	16.04	V / 1.00 / 230	-67.96	n/a
30m extrapolated level using 38.38dB/decade roll off based on 0.3m to 3.0m delta						

List of measurements for run #: 1

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC 15.225 13.56 MHz fundamental. 3m qp	DELTA2
13.56 MHz	-33.35 Qp	0.41 / 11.32 / 0.0 / 0.0	-21.61	V / 1.00 / 360	-105.61	n/a

Measurement summary for limit1: FCC 15.225 13.56 MHz fundamental. 3m (Qp)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV/m)	FINAL (μ V/m)	LIMIT (μ V/m at 30m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC 15.225 13.56 MHz fundamental. 3m qp
13.56 MHz	-31.9 Qp	0.41 / 11.32 / 0.0 / 0.0	-20.16	0.098	15848	V / 1.00 / 230	-104.16



Radiated emissions < 30 MHz, outside the band 13.553 – 13.567 MHz

FCC §15.225(b), RSS-210 B.6(b). Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz

FCC §15.225(c), RSS-210 B.6(c). Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz

FCC §15.225(d), RSS-210 B.6(d). Outside of the 13.110-14.010 MHz band

Test summary

The requirements are: ■ - MET □ - NOT MET

Testing was performed in accordance with the test procedure of ANSI C63.10 2013, clauses 6.4 "Radiated emissions from unlicensed wireless devices below 30 MHz". No significant emissions were detected from 0.009 – 30 MHz.

Test location

Taylors Falls Lab. Large Test Site (Open Area Test Site)

Test distance

0.3 meters

Test Equipment

TUV ID	Model	Manufacturer	Description	Serial	Cal Date	Cal Due
WRLE02418	6502	EMCO	Loop Antenna	2215	13 Sep 16	14 Sep 17
WRLE02534	ESHS-20	Rohde & Schwarz	EMI Receiver 9kHz-30MHz	837055/003	24-Oct-16	24-Oct-17
WRLE10863	N/A	TÜV SÜD America Inc	Test Companion Software Version 3.4.77	N/A	Code Y	Code Y

Code Y = Calibration not required when used with other calibrated equipment

Limits

Frequency (MHz)	Field Strength (µV/m)	Field Strength (dBµV/m)	Distance (meters)
0.009 - 0.490	2400 / F(kHz)	48.52 – 13.8	300
0.490 - 1.705	24000 / F(kHz)	33.8 – 22.97	30
1.705 – 13.110	30	29.54	30
13.110 – 13.410	106	40.50	30
13.410 – 13.553	334	50.47	30
13.567 – 13.710	334	50.47	30
13.710 – 14.010	106	40.50	30
14.010 - 30.0	30	29.54	30

Test data

List of measurements for run #: 1

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC 15.225 13.56 MHz fundamental. 3m qp	DELTA2
Scanned all sides of DUT. 0.009 - 30 MHz at 0.3m distance						
No significant emissions detected						

Radiated emissions 30 - 1000 MHz

FCC §15.225(d), RSS-210 B.6(d)

Test summary

The requirements are: ■ - MET □ - NOT MET

Testing was performed in accordance with the test procedure of ANSI C63.10 2013, clause 6.5 "Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz".

Per FCC §15.209(f), In accordance with §15.33(a), in some cases the emissions from an intentional radiator must be measured to beyond the tenth harmonic of the highest fundamental frequency designed to be emitted by the intentional radiator because of the incorporation of a digital device. If measurements above the tenth harmonic are so required, the radiated emissions above the tenth harmonic shall comply with the general radiated emission limits applicable to the incorporated digital device, as shown in §15.109 and as based on the frequency of the emission being measured, or, except for emissions contained in the restricted frequency bands shown in §15.205, the limit on spurious emissions specified for the intentional radiator, whichever is the higher limit. Emissions which must be measured above the tenth harmonic of the highest fundamental frequency designed to be emitted by the intentional radiator and which fall within the restricted bands shall comply with the general radiated emission limits in §15.109 that are applicable to the incorporated digital device.

The DUT does incorporate a class A digital device. Emission levels from 30 – 135.6 MHz (10th harmonic) were compared to the limits of §15.209. Emission levels from 135.6 – 1000 MHz were compared to the class A limits of §15.109 extrapolated to a 3m distance. The worst-case emission relative to the limits is 48.62 dBµV/m at 700.036 MHz at 3 meters. Margin of compliance is 8.28 dB.

Test location

Taylors Falls Lab. Large Test Site (Open Area Test Site)

Test distance

3.0 meters

Test Equipment

TUV ID	Model	Manufacturer	Description	Serial	Cal Date	Cal Due
WRLE03203	EM-6917B	Electro-Metrics	Biconicalog Periodic	106	15-Dec-16	15-Dec-17
WRLE10896	ZHL-1042J	Mini-Circuits	Amplifier Broadband AMP/ SMA QA1148002	NA	Code B 17 Jan 17	Code B 17 Jan 18
WRLE11144	8566B	Hewlett-Packard	Spectrum Analyzer	2728A04260	06 Jul 17	06 Jul 18
WRLE11145	85662A	Hewlett-Packard	Analyzer Display	2648A14613	06 Jul 17	06 Jul 18
WRLE11456	8566B	Hewlett-Packard	Spectrum Analyzer	2618A02947	21 Oct 16	21 Oct 17
WRLE10863	N/A	TÜV SÜD America Inc	Test Companion Software Version 3.4.77	N/A	Code Y	Code Y

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

Limit at 3 meters

Frequency (MHz)	Field Strength (µV/m)	Field Strength (dBµV/m)
30 – 88	100	40.0
88 – 135.6	150	43.5
135.6 – 216	500	54.0
216 – 960	700	56.9
> 960	1000	60.0

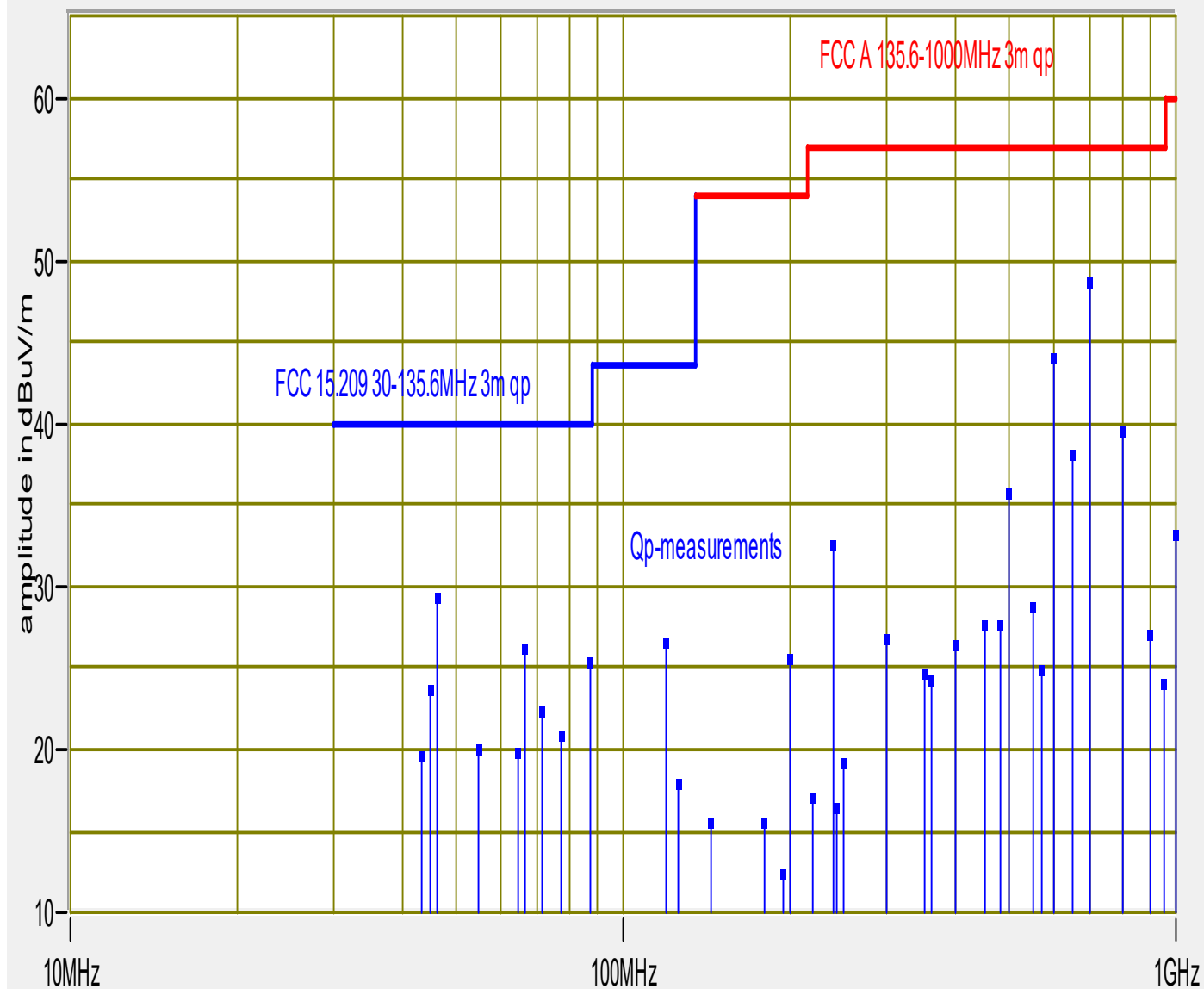
Test data

Measurement summary for limit1: FCC 15.209 30-135.6MHz 3m (Qp)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC 15.209 30-135.6MHz 3m qp
46.174 MHz	43.35 Qp	0.58 / 14.16 / 28.81 / 0.0	29.27	V / 1.00 / 270	-10.73
66.208 MHz	45.05 Qp	0.7 / 9.36 / 28.9 / 0.0	26.2	V / 1.00 / 0	-13.8
87.334 MHz	46.65 Qp	0.82 / 6.92 / 29.05 / 0.0	25.34	V / 1.00 / 0	-14.66
44.674 MHz	37.4 Qp	0.57 / 14.6 / 28.89 / 0.0	23.67	V / 1.00 / 0	-16.33
120.034 MHz	46.65 Qp	1.02 / 8.07 / 29.11 / 0.0	26.64	V / 1.00 / 90	-16.86
71.128 MHz	42.15 Qp	0.73 / 8.48 / 29.02 / 0.0	22.33	V / 1.00 / 0	-17.67
77.368 MHz	41.75 Qp	0.76 / 7.4 / 29.17 / 0.0	20.75	V / 1.00 / 180	-19.25
54.628 MHz	36.35 Qp	0.63 / 12.04 / 28.95 / 0.0	20.07	V / 1.00 / 0	-19.93
64.348 MHz	38.4 Qp	0.68 / 9.77 / 29.05 / 0.0	19.8	V / 1.00 / 0	-20.2
43.054 MHz	32.75 Qp	0.56 / 15.08 / 28.81 / 0.0	19.58	V / 1.00 / 0	-20.42
126.136 MHz	38.25 Qp	1.06 / 7.71 / 29.25 / 0.0	17.77	V / 1.00 / 180	-25.73

Measurement summary for limit2: FCC A 135.6-1000MHz 3m (Qp)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA2 FCC A 135.6- 1000MHz 3m qp
700.036 MHz	55.32 Qp	2.94 / 19.9 / 29.54 / 0.0	48.62	V / 1.00 / 181	-8.28
600.038 MHz	51.87 Qp	2.7 / 19.1 / 29.73 / 0.0	43.95	V / 1.00 / 0	-12.95
800.04 MHz	44.6 Qp	3.17 / 21.5 / 29.64 / 0.0	39.63	V / 1.00 / 180	-17.27
650.036 MHz	45.2 Qp	2.82 / 19.66 / 29.66 / 0.0	38.02	V / 1.00 / 180	-18.88
500.036 MHz	45.1 Qp	2.46 / 17.8 / 29.61 / 0.0	35.76	V / 1.00 / 270	-21.14
240.01 MHz	49.25 Qp	1.6 / 10.8 / 29.2 / 0.0	32.44	V / 1.00 / 90	-24.46
1.0 GHz	36.9 Qp	3.35 / 22.8 / 29.88 / 0.0	33.17	V / 1.00 / 180	-26.83
550.036 MHz	38.05 Qp	2.58 / 17.77 / 29.61 / 0.0	28.79	V / 1.00 / 0	-28.11
200.018 MHz	43.2 Qp	1.46 / 10.3 / 29.46 / 0.0	25.5	V / 1.00 / 0	-28.5
450.018 MHz	38.4 Qp	2.32 / 16.4 / 29.53 / 0.0	27.59	V / 1.00 / 90	-29.31
480.017 MHz	38.05 Qp	2.42 / 16.8 / 29.7 / 0.0	27.57	V / 1.00 / 270	-29.33
900.042 MHz	31.8 Qp	3.16 / 21.9 / 29.91 / 0.0	26.95	V / 1.00 / 90	-29.95
300.017 MHz	42.05 Qp	1.8 / 12.33 / 29.33 / 0.0	26.85	V / 1.00 / 0	-30.05
400.018 MHz	37.4 Qp	2.15 / 16.03 / 29.3 / 0.0	26.28	V / 1.00 / 270	-30.62
569.543 MHz	32.85 Qp	2.63 / 18.97 / 29.59 / 0.0	24.86	V / 1.00 / 0	-32.04
350.018 MHz	37.65 Qp	1.98 / 14.4 / 29.4 / 0.0	24.62	V / 1.00 / 90	-32.28
360.017 MHz	36.85 Qp	2.01 / 14.8 / 29.45 / 0.0	24.21	V / 1.00 / 90	-32.69
950.048 MHz	28.5 Qp	3.25 / 22.35 / 30.09 / 0.0	24.02	V / 1.00 / 0	-32.88
250.018 MHz	35.5 Qp	1.63 / 11.3 / 29.26 / 0.0	19.17	V / 1.00 / 0	-37.73
179.74 MHz	34.55 Qp	1.38 / 8.87 / 29.24 / 0.0	15.57	V / 1.00 / 0	-38.43
144.004 MHz	34.65 Qp	1.16 / 8.62 / 28.95 / 0.0	15.48	V / 3.00 / 180	-38.52
220.313 MHz	34.8 Qp	1.53 / 10.24 / 29.46 / 0.0	17.1	V / 1.00 / 0	-39.8
244.192 MHz	32.75 Qp	1.61 / 11.01 / 29.03 / 0.0	16.35	V / 1.00 / 270	-40.55
194.801 MHz	30.25 Qp	1.44 / 9.99 / 29.35 / 0.0	12.33	V / 1.00 / 180	-41.67



Frequency tolerance

FCC §15.225(e), RSS-210 B.6

Test summary

The requirements are: ■ - MET □ - NOT MET

All frequency measurements over the specified voltage and temperature ranges were within tolerance.

Test location

New Brighton. Temperature chamber

Test Equipment

TUV ID	Model	Manufacturer	Description	Serial	Cal Date	Cal Due
NBLE02238	SH27	Envirotronics	27 Cu Ft Temp / Humidity chamber	09963482-S	14 Jul 17	14 Jul 18
NBLE02435	LP-105A	Singer	Magnetic Field Probe	1	Code Y	Code Y
NBLP10900	1251P	Ametek	Power Supply	1205A02087	25 Jul 17	25 Jul 19
NBLE10987	179	Fluke	Multimeter Fluke 179	19990606	20 Oct 16	20 Oct 17
WRLE10435	E4440A	Agilent	Spectrum Analyzer	MY44303483	17 Oct 16	17 Oct 17

Code Y = Calibration not required when used with other calibrated equipment

Limit

The frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ of the operating frequency over a temperature variation of -20°C to 50°C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20°C .

Test data

Temperature ($^{\circ}\text{C}$)	Voltage (Vrms)	Frequency (MHz)	Tolerance (MHz)	Result
-20	110	13.560141	13.558644 – 13.561356	Pass
50	110	13.560168	13.558644 – 13.561356	Pass
20	93	13.560172	13.558644 – 13.561356	Pass
20	127	13.560172	13.558644 – 13.561356	Pass

Occupied bandwidth

RSS-Gen 6.6

Test summary

The requirements are: ■ - MET □ - NOT MET

The measurement settings were determined by the occupied bandwidth measurement function of the spectrum analyzer. OBW = 24.6608 kHz.

Test location

New Brighton

Test equipment

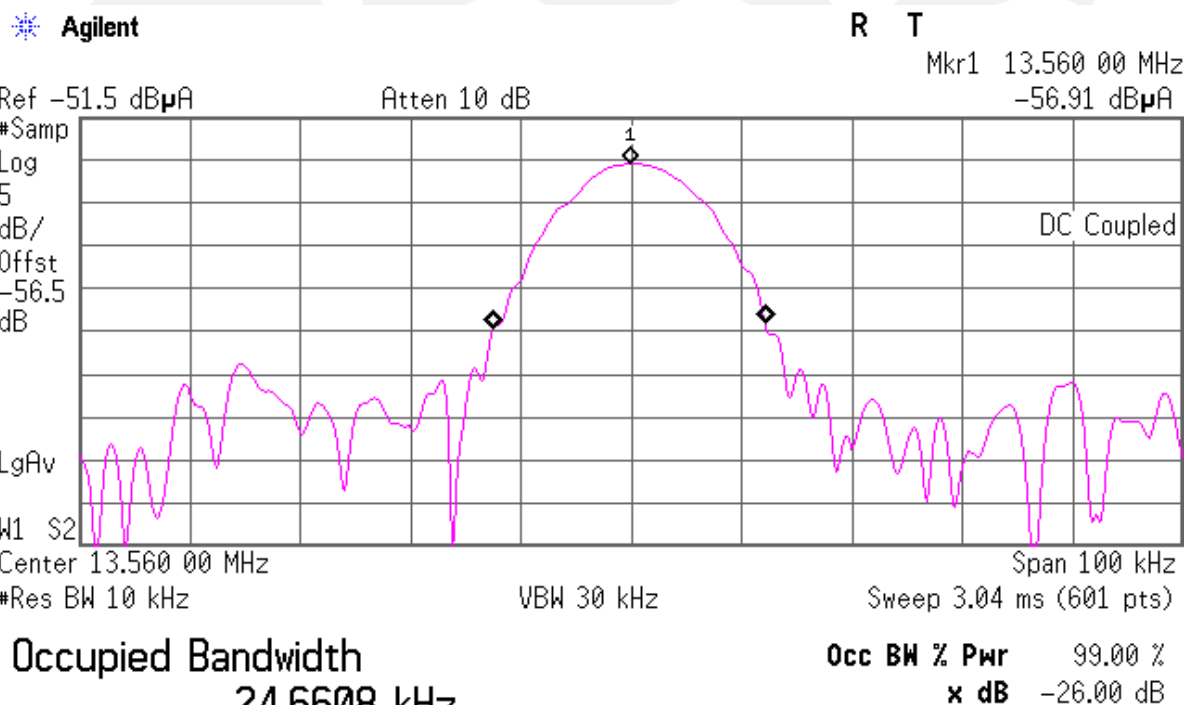
TUV ID	Model	Manufacturer	Description	Serial	Cal Date	Cal Due
NBLE02435	LP-105A	Singer	Magnetic Field Probe	1	Code Y	Code Y
WRLE10435	E4440A	Agilent	Spectrum Analyzer	MY44303483	17 Oct 16	17 Oct 17

Code Y = Calibration not required when used with other calibrated equipment.

Test limit

The occupied bandwidth limit is not stated in RSS-210. When the limit is not stated in the applicable RSS or reference measurement method, the transmitted signal bandwidth shall be reported as the 99% emission bandwidth, as calculated or measured.

Test data



Transmit Freq Error -226.901 Hz
x dB Bandwidth 81.241 kHz*

AC power line conducted emissions

FCC §15.207, RSS-Gen 8.8

Test summary

The requirements are: ■ - MET □ - NOT MET

Testing was performed in accordance with the test procedure of ANSI C63.10 2013, clauses 6.2 "Standard test method for ac power-line conducted emissions from unlicensed wireless devices". The worst-case emission, relative to the quasi-peak limit, was 151.34 kHz at 52.9 dBμV. Margin of compliance is 13.02 dB. The worst-case emission, relative to the average limit, was 647.49 kHz at 29.56 dBμV. Margin of compliance is 16.44 dB.

Test location

Taylors Falls Lab. Shield room 2

Test equipment

TUV ID	Model	Manufacturer	Description	Serial	Cal Date	Cal Due
WRLE10945	50-25-2-10	Fischer Custom Comm	LISN	120309	08 Aug 16	08 Aug 17
WRLE02534	ESHS-20	Rohde & Schwarz	EMI Receiver 9kHz-30MHz	837055/003	24-Oct-16	24-Oct-17
WRLE10863	N/A	TÜV SÜD America Inc	Test Companion Software Version 3.4.77	N/A	Code Y	Code Y

Code Y = Calibration not required when used with other calibrated equipment.

Test limit

Frequency (MHz)	Conducted Limit (dBμV)	
	Quasi-peak	Average
0.15 – 0.5	66 to 56*	56 to 46*
0.5 – 5	56	46
5 - 30	60	50

*Decreases with the logarithm of the frequency

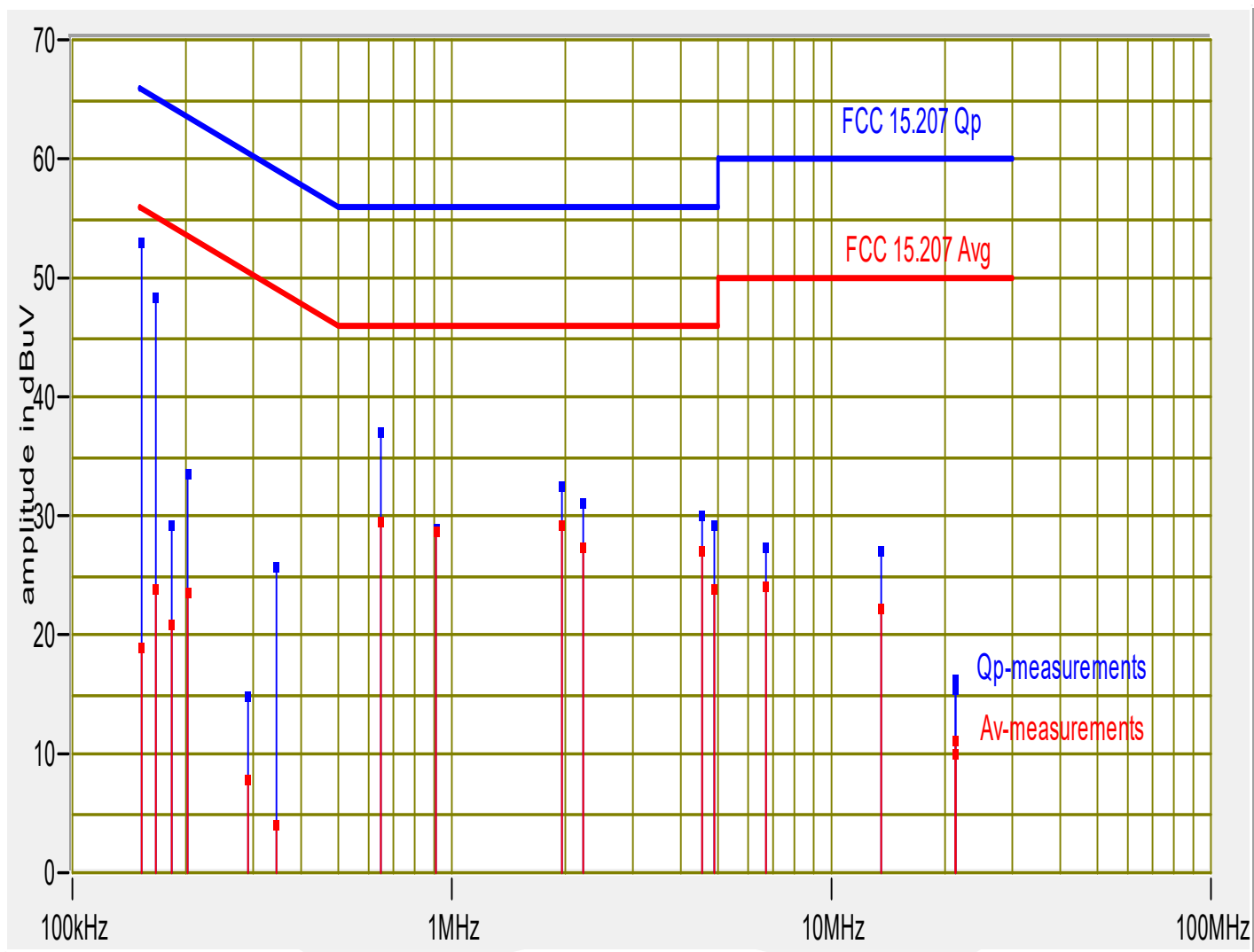
Test data

Measurement summary for limit1: FCC 15.207 Qp (Qp)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV)	EUT Lead	DELTA1 FCC 15.207 Qp
151.34 kHz	53.15 Qp	0.0 / -0.25 / 0.0 / 0.0	52.9	L2 220V	-13.02
165.0 kHz	48.65 Qp	0.0 / -0.25 / 0.0 / 0.0	48.4	L2 220V	-16.8
647.49 kHz	37.33 Qp	0.01 / -0.18 / 0.0 / 0.0	37.16	L2 220V	-18.84
1.947 MHz	32.41 Qp	0.03 / -0.01 / 0.0 / 0.0	32.43	L1 220V	-23.57
2.208 MHz	31.09 Qp	0.03 / 0.0 / 0.0 / 0.0	31.12	L1 110V	-24.88
4.545 MHz	29.93 Qp	0.07 / -0.02 / 0.0 / 0.0	29.98	L2 110V	-26.02
4.935 MHz	29.05 Qp	0.08 / -0.02 / 0.0 / 0.0	29.1	L2 220V	-26.9
909.0 kHz	29.09 Qp	0.01 / -0.15 / 0.0 / 0.0	28.96	L2 110V	-27.04
201.0 kHz	33.73 Qp	0.0 / -0.24 / 0.0 / 0.0	33.49	L2 220V	-30.08
6.687 MHz	27.21 Qp	0.1 / -0.04 / 0.0 / 0.0	27.28	L2 110V	-32.72
13.56 MHz	27.01 Qp	0.21 / -0.09 / 0.0 / 0.0	27.13	L1 220V	-32.87
345.0 kHz	25.97 Qp	0.01 / -0.22 / 0.0 / 0.0	25.75	L2 220V	-33.33
183.0 kHz	29.35 Qp	0.0 / -0.25 / 0.0 / 0.0	29.11	L1 110V	-35.24
21.225 MHz	15.95 Qp	0.3 / -0.14 / 0.0 / 0.0	16.11	L2 220V	-43.89
21.3 MHz	15.25 Qp	0.3 / -0.14 / 0.0 / 0.0	15.41	L2 110V	-44.59
291.0 kHz	15.11 Qp	0.0 / -0.23 / 0.0 / 0.0	14.88	L1 110V	-45.61

Measurement summary for limit2: FCC 15.207 Avg (Av)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV)	EUT Lead	DELTA2 FCC 15.207 Avg
647.49 kHz	29.73 Av	0.01 / -0.18 / 0.0 / 0.0	29.56	L2 220V	-16.44
1.947 MHz	29.2 Av	0.03 / -0.01 / 0.0 / 0.0	29.22	L1 220V	-16.78
909.0 kHz	28.8 Av	0.01 / -0.15 / 0.0 / 0.0	28.67	L2 110V	-17.33
2.208 MHz	27.15 Av	0.03 / 0.0 / 0.0 / 0.0	27.18	L1 110V	-18.82
4.545 MHz	27.09 Av	0.07 / -0.02 / 0.0 / 0.0	27.14	L2 110V	-18.86
4.935 MHz	23.61 Av	0.08 / -0.02 / 0.0 / 0.0	23.66	L2 220V	-22.34
6.687 MHz	23.89 Av	0.1 / -0.04 / 0.0 / 0.0	23.96	L2 110V	-26.04
13.56 MHz	22.13 Av	0.21 / -0.09 / 0.0 / 0.0	22.25	L1 220V	-27.75
201.0 kHz	23.66 Av	0.0 / -0.24 / 0.0 / 0.0	23.42	L2 220V	-30.15
165.0 kHz	24.16 Av	0.0 / -0.25 / 0.0 / 0.0	23.91	L2 110V	-31.29
183.0 kHz	21.07 Av	0.0 / -0.25 / 0.0 / 0.0	20.83	L1 110V	-33.52
151.34 kHz	19.18 Av	0.0 / -0.25 / 0.0 / 0.0	18.93	L2 220V	-36.99
21.225 MHz	10.94 Av	0.3 / -0.14 / 0.0 / 0.0	11.1	L2 220V	-38.9
21.3 MHz	9.75 Av	0.3 / -0.14 / 0.0 / 0.0	9.91	L2 110V	-40.09
291.0 kHz	7.96 Av	0.0 / -0.23 / 0.0 / 0.0	7.73	L1 110V	-42.76
345.0 kHz	4.4 Av	0.01 / -0.22 / 0.0 / 0.0	4.18	L1 220V	-44.9



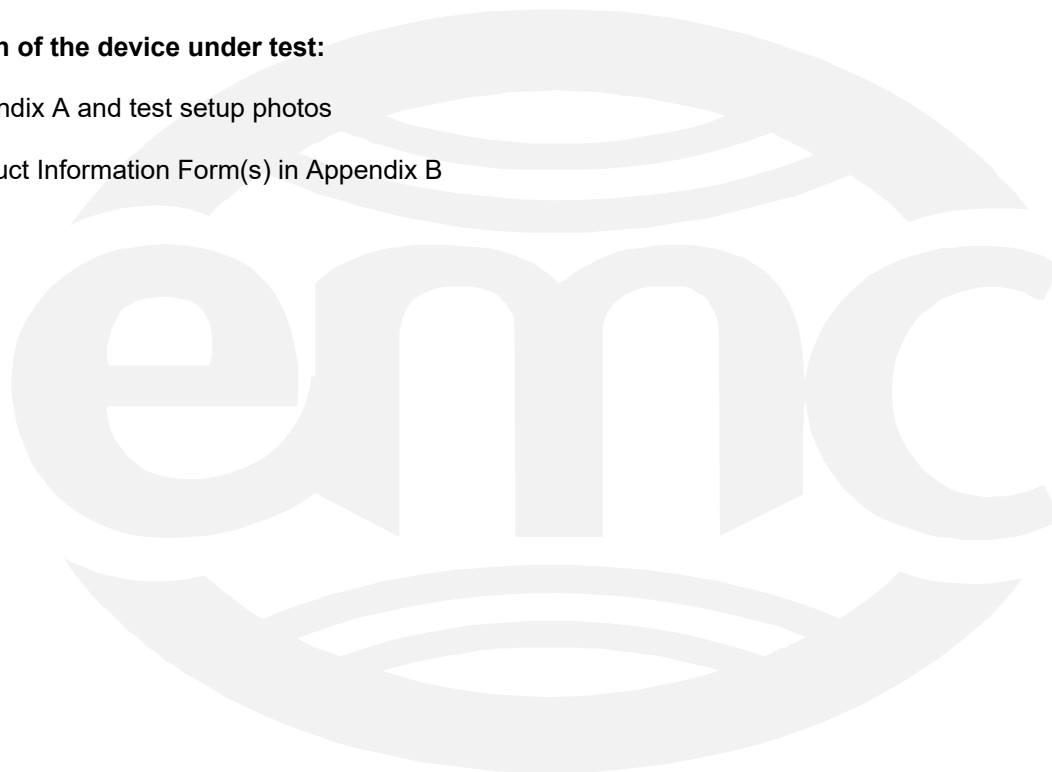
Equipment Under Test (EUT) Test Operation Mode:

The device under test was operated under the following conditions:

- ☐ - Standby
- ☐ - Test program (customer specific)
- ☐ - Practice operation
- ☒ - Fundamental carrier set to CW or with normal modulation

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: 31 July 2017

Condition of EUT: Normal

Testing Start Date: 31 July 2017

Testing End Date: 2 August 2017

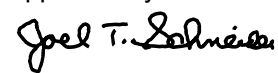
TÜV SÜD AMERICA INC

Tested by:



Greg Jakubowski
Senior EMC Technician

Approved by:



Joel T Schneider
Senior EMC Engineer

Appendix A

EMC Test Plan



Form



EMC Test Plan and Product Information 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 VERSION OF THIS DOCUMENT INDICATING THOSE MODIFICATIONS.

NOTE: This information will be input into your test report as shown below.

Company:	Rimage Corporation		
Address: (incl City, State, ZIP)	7725 Washington Avenue South Minneapolis, MN 55439		
Contact:	Zahid Taufiq	Position:	Compliance Engineer
Phone - Office:	952-683-7881	Cell:	
E-mail Address:	Zahid.taufiq@rimage.com	Form completion date:	06/15/2017

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

EUT Description	Optical Disc Label Printer		
EUT Name	Everest Encore		
Model No.:	CDPR23B	Serial No.:	
Product Options:	Everest Encore Disc Printer		
Configurations to be tested:	Everest Encore Disc Printer		

Equipment Modification (If applicable, indicate modifications since EUT was last tested. If modifications are made during this testing, submit revised version of this document after testing is complete.)

Modifications since last test:	Change from UHF RFID (2.4GHz) to HF RFID (13.56MHz)
Modifications made during test:	

EUT Specifications and Requirements

Length: 14.8 in Width: 9.5 in Height: 9.7 in Weight: 45 lb

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, 60/50 Hz (If battery powered, make sure battery life is sufficient to complete testing.)

of Phases: 1

Current (Amps/phase(max)): 3.7-3.9 AMP Current (Amps/phase(nominal)): 2.9-3.1 AMP

Oscillator Frequencies (Please list any and all internally generated frequencies of the Product - clocks, CPUs, etc. The highest frequency will determine the upper frequency range to be tested.)

Frequency (kHz, MHz, GHz)	Description of Use
32 MHz	USB2 Interface Chip
5 MHz	Micro Controller Clock
30 MHz	Printhead Logic Clock
13.56 MHz	HF RFID

Form



EMC Test Plan and Product Information Form

Typical Installation and/or Operating Environment (ie. Hospital, Small Business, Industrial/Factory, etc.)

This equipment is typically used in commercial and light industrial environments.

Test Objective(s):

Please indicate (x) the tests to be performed, entering the applicable standard(s) where noted.

☒ EMC Directive	Std(s):	2004/108/EC
☒ RED Directive	Std(s):	
☐ Medical Device Directive	Std(s):	
☐ Vehicle	Std(s):	
☐ Ag Directive	Std(s):	

Countries Needed (common standards shown below - "x" those applicable):

☒ FCC (USA):	Class	☒ A (Industrial)	☐ B (Residential)	
☒ VCCI (Japan):	Class	☒ A (Industrial)	☐ B (Residential)	
☒ BSMI (Taiwan):	Class	☒ A (Industrial)	☐ B (Residential)	(Separate Report required)
☒ Canada:	Class	☒ A (Industrial)	☐ B (Residential)	
☒ Australia	Class	☒ A (Industrial)	☐ B (Residential)	
☒ Korea:	Std(s):			
☐ Other:	Std(s):			

Other Special Requirements (i.e. Water access, compressed air, etc)

Emissions Testing Operating Modes.

Describe what the product is doing during testing. Describe how the product will be exercised during emissions testing and what software is running, if any. If testing multiple operating modes, please describe each one. If testing only one operating mode out of several, please describe why it is considered the worst-case. In addition to operating modes, all ports must be populated to achieve the worst case condition.

Operating Mode 1.	Cycle test that continuously moves and print discs.
Operating Mode 2.	

Immunity Testing Operating Modes.

If different than operating mode during emissions testing, describe what the product is doing during test. Describe how the product will be exercised during immunity testing and what software is running, if any. If testing multiple operating modes, please describe each one. If testing only one operating mode out of several, please describe why it is considered the worst-case. In addition to operating modes, all ports must be populated to achieve the worst case condition.

Cycle Time of Product:	
Operating Mode 1.	Cycle test that continuously moves and print discs.
Operating Mode 2.	

Form



EMC Test Plan and Product Information Form

Immunity Testing Performance Criteria and Pass/Fail Criteria.

For immunity testing, it is very important that performance criteria be defined. Please describe what parameters can be monitored, as well as their tolerances, to ensure that the product is operating properly during the immunity testing. Explain what the test operator should monitor during the testing to determine if the product is operating within specified parameters.

Optical disc printer is continuously printing.

EUT Interface Ports and Cables

In order to verify all configurations in the report properly, it is generally necessary to populate all ports on the equipment under test. If any ports are to remain unpopulated, the justification for leaving them unpopulated should be noted. (e.g., "diagnostic use only"). Please note that any unpopulated port will be documented in the report, which may exclude it from the scope of compliance as detailed in that report. Please provide as many cables as possible for testing adding rows as needed. **The cable length should represent the maximum length of cable that you specify that can be attached to the product in your instruction manual. TUV SUD AMERICA requires a minimum of 15 feet that will connect to any support equipment that you do not want included in the test field.**

Type	Length tested (in meters)	Qty	Shielding		
			Yes	No	Type
EXAMPLE: Ethernet	6	2		X	
USB 2.0	1.0	1	X		
RS 232	0.61	1	X		

Equipment Under Test (EUT) System Components

List and describe all major components which are part of the EUT. For FCC & Taiwan testing a minimum configuration is required.

Description	Model #	Serial #	FCC ID #
Everest Encore Disc Printer	CDPR23B		QT5-CDPR22

Customer Supplied Support Equipment

List and describe all support equipment which is not part of the EUT but that you are providing to exercise and monitor your product. Support equipment is defined as only needed for testing and is not part of the final product to be delivered to the customer (i.e. peripherals, simulators, etc) This information is required for FCC & Taiwan testing.

Autoprinter III; Computer; LCD display; Keyboard and Mouse

Critical EMI Components (Capacitors, ferrites, etc.)

Description	Manufacturer	Part # or Value	Qty	Component # / Location

Form



EMC Test Plan and Product Information Form

EMC Critical Detail

Describe other EMC Design details used to reduce high frequency noise.

System Configuration Block Diagram

Provide a line drawing identifying the EUT, simulators, support equipment, I/O cables, power cables, and any other pertinent components to be used during testing. Use a dashed line to separate the equipment in the testing field versus equipment outside testing field.