

Global EMC Inc. Labs

EMC Test Report

As per

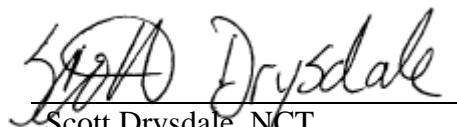
FCC Part 15:2007, Subpart C, 15.225

RSS 210:Issue 7, A2.6

Modular Equipment

on the

6352XP Reader



Scott Drysdale, NCT
EMC Lab Manager
Global EMC Inc.
180 Brodie Dr, Unit 2
Richmond Hill, ON L4B 3K8
Canada
Ph: (905) 883-3919

Testing produced for



See Appendix A for full customer & EUT details.



REGISTRATION #6844A-1



R-2621
C-2864



Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



Table of Contents

Table of Contents.....	2
Report Scope.....	3
Summary	4
Test Results Summary	4
Justifications or Deviations.....	6
Applicable Standards, Specifications and Methods.....	6
Sample calculation(s).....	7
Document Revision Status.....	7
Definitions and Acronyms	8
Testing Facility	9
Calibrations and Accreditations.....	9
Testing Environmental Conditions and Dates	10
Detailed Test Results Section	11
Radiated Emissions.....	12
RFID Emissions Mask	19
Maximum Permissible Exposure	25
Temperature Frequency Stability.....	27
Appendix A – Customer Provided Details.....	33
Appendix B – EUT and Test Setup Photographs.....	35

Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



Report Scope

This report addresses the EMC verification testing and test results of the 6352XP Reader, herein referred to as EUT (Equipment Under Test) performed at Global EMC Labs.

The EUT was tested for compliance against the following standards:

FCC Part 15 Subpart C:2007
RSS 210:Issue 7

Radiated emissions testing were evaluated on the EUT. Test procedures, results, justifications, and engineering considerations, if any, follow later in this report.

The results contained in this report relate only to the item(s) tested.

This report does not imply product endorsement by A2LA or any other accreditation agency, any government, or Global EMC Inc.

Opinions/interpretations expressed in this report, if any, are outside the scope of Global EMC Inc accreditation. Any opinions expressed do not necessarily reflect the opinions of Global EMC Inc, unless otherwise stated.

Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



Summary

The results contained in this report relate only to the item(s) tested.

FCC ID #	WAA6352XP
IC Registration #	7687A-6352XP
Equipment under test	Opty's 6352XP Reader
EUT Passed all tests performed.	Yes
Tests conducted by	Scott Drysdale

Test Results Summary

Standard/Method	Description	Result
FCC 15.207 ICES-003	Power line conducted emissions	See Justifications
FCC 15.209 RSS-210 Tables 2 & 3	Radiated emissions	PASS
FCC 15.203 RSS-Gen 7.1.4	Antenna Requirement	PASS – See Justifications
FCC 15.205 RSS-210 Table 1	Restricted Bands	PASS – See Justifications
FCC 15.225 (a)(b)(c)(d) RSS-210 A2.6	Emissions Mask	PASS
FCC 15.225 (e) RSS-210 A2.6	Temperature Frequency Stability	PASS
FCC 1.1310 Table 1 (B) IC Safety Code 6	Maximum Permissible Exposure (General population)	PASS
Overall Result		PASS

All tests were performed by Scott Drysdale.

Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



If the product as tested complies with the specification, the EUT is deemed to comply with the standard and is deemed a 'PASS' grade. If not 'FAIL' grade will be issued. Note that 'PASS' or 'FAIL' grade is independent of any measurement uncertainties.

A 'PASS' or 'FAIL' grade within measurement uncertainty is marked with a '*'.

Client	Opty's Corporation	
Product	6352XP Reader	
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7	

Justifications or Deviations

The following justifications for tests not performed or deviations from the above listed specifications apply:

For FCC 15.203 requirements, this product uses a reverse polarity SMA connector and is designed to be connected to proprietary PCB trace loop antenna.

For FCC 15.205 requirements, this product does not intentionally transmit in any of the restricted bands.

For FCC 15.207 requirements, this product is powered by DC only and therefore power line conducted emissions testing is not applicable.

No deviations are recorded.

Applicable Standards, Specifications and Methods

ANSI C63.4:2003	- Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
CFR 47 FCC 15	- Code of Federal Regulations – Radio Frequency Devices
CISPR 22:1997	- Information technology equipment – Radio disturbance characteristics – Limits and methods of measurement
ICES-003:2004	- Digital Apparatus - Spectrum Management and Telecommunications Policy Interference-Causing Equipment Standard
ISO 17025:2005	- General Requirements for the competence of testing and calibration laboratories

Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



Sample calculation(s)

Margin = limit – (received signal + antenna factor + cable loss – pre-amp gain)

Margin = 50.5dBuV/m – (50dBuV + 10dB + 2.5dB – 20dB)

Margin = 8.5 dB

Document Revision Status

Revision 1 -

First revision issued on May 1, 2008.

Revision 2 –

May 7, 2008 – FCC ID changed from “V6I” to “WAA”

Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



Definitions and Acronyms

The following definitions and acronyms are applicable in this report.
See also ANSI C63.14.

AE – Auxillary Equipment.

Class A device – A digital device that is marketed for use in a commercial, industrial or business environment. A ‘Class A’ device should not be marketed for use by the general public. A ‘Class A’ device should contain the following or similar warning in it’s user manual: “**Warning:** This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.”

Class B device – A digital device that is marketed for use in a residential environment and may also be used in a commercial, business or industrial environments. A ‘Class B’ device may also be defined as a device to which a broadcast radio or television receivers would be expected to be common within a distance of 10 m of the device concerned.

EMC – Electro-Magnetic Compatibility

EMI – Electro-Magnetic Immunity

EUT – Equipment Under Test

ITE – Information Technology Equipment with a primary function(s) of entry, storage, display, retrieval, transmission, processing, switching, or control, of data.

LISN – Line impedance stabilization network

NCR – No Calibration Required

RF – Radio Frequency

Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



Testing Facility

Testing for EMC on the EUT was carried out at Global EMC labs in Toronto, Ontario, Canada. The testing lab consists of a 3m semi-anechoic chamber calibrated to be able to allow measurements on an EUT with a maximum width or length of up to 2m and height up to 3m. The chamber is equipped with a turn table that is capable of testing devices up to 3300lb in weight. This facility is capable of testing products that are rated for 120 Vac and 240Vac single phase, or 208 Vac 3 phase input. DC capability is also available. The chamber is equipped with an antenna mast that controls polarization and height from the control room adjoining the shielded chamber. Radiated emissions measurements are performed using a Bilog, and Horn antenna where applicable. Conducted emissions, unless otherwise stated, are performed using a LISN and using the Vertical Ground plane.

Calibrations and Accreditations

The 3m semi-anechoic chamber is registered with Federal Communications Commission (FCC, 612361), Industry Canada (IC, 6844A-1) and VCCI (R-2621 and C-2864). This chamber was calibrated for Normalized Site Attenuation (NSA) using test procedures outlined in ANSI C63.4 "Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz". The chamber is lined with ferrite tiles and absorption cones to minimize any undesired reflections. The NSA data is kept on file at Global EMC. For radiated susceptibility testing, a 16 point field calibration has been performed on the chamber. The field uniformity data is kept on file at Global EMC. Global EMC Inc is accredited to ISO 17025 by A2LA with Testing Certificate #2555.01. The laboratories current scope of accreditation listing can be found as listed on the A2LA website. All measuring equipment is calibrated on an annual or bi-annual basis as listed for each respective test.

Client	Optys Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



Testing Environmental Conditions and Dates

Following were the environmental conditions in the facility during time of testing –

Date	Test	Init.	Temperature (°C)	Humidity (%)	Pressure (kPa)
April 8 – 25, 2008	All	SD	20-25°C	55%	100-103 kPa

Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



Detailed Test Results Section

Client	Optys Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



Radiated Emissions

Purpose

The purpose of this test is to ensure that the RF energy unintentionally emitted from the EUT does not exceed the limits listed below as defined in the applicable test standard, as measured from a receiving antenna. This helps protect broadcast radio services such as television, FM radio, pagers, cellular telephones, emergency services, and so on, from unwanted interference.

Limit(s) and Method

The method is as defined in ANSI C63.4:2003.

The limits are as defined in FCC Part 15, Section 15.209:

1.705 MHz – 30 MHz, 30 uV/m at 30 m¹
 30 MHz – 88 MHz, 100 uV/m (40.0 dBuV/m¹) at 3 m
 88 MHz – 216 MHz, 150 uV/m (43.5 dBuV/m¹) at 3 m
 216 MHz – 960 MHz, 200 uV/m (46.4 dBuV/m¹) at 3 m
 Above 960 MHz, 500 uV/m (54.0 dBuV/m¹) at 3 m
 Above 1000 MHz², 500 uV/m (54 dBuV/m) at 3m

¹Limit is with using a Quasi Peak detector at bandwidths defined in CISPR 16.

²Limit is with 1 MHz measurement bandwidth and using an Average detector

In accordance with FCC Part 15, Subpart A, Section 15.33, the device was scanned to a minimum of a 1 GHz.

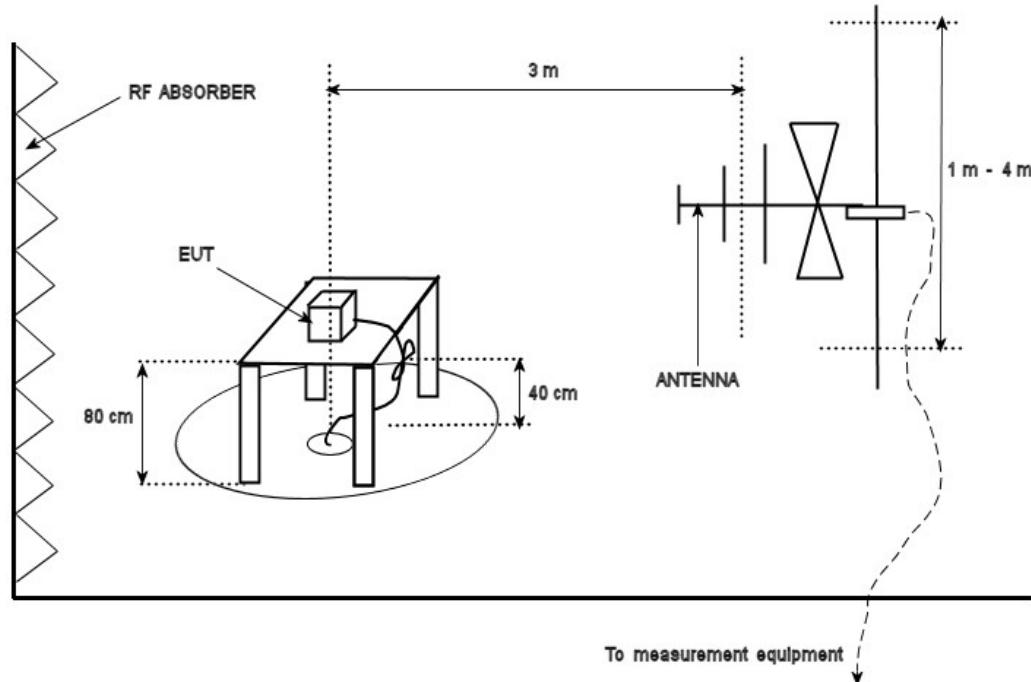
Devices scanned above 1GHz may be scanned at 1 meter test distance, and in accordance with FCC Part 15, Subpart A, Section 15.31, an extrapolation factor of 20 dB/decade was used. For example for 1 meter measurements, an extrapolation factor 9.5 dB from 20 Log (1m / 3m) is applied.

Devices scanned below 30 MHz are scanned at a 3 meter test distance, and in accordance with FCC Part 15, Subpart A, Section 15.31, an extrapolation factor of 40 dB/decade was used. For example for 3 meter measurements, an extrapolation factor 40 dB from 40 Log (30m / 3m) is applied.

Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



Typical Radiated Emissions Setup



Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



Measurement Uncertainty

The expanded measurement uncertainty is calculated in accordance with CISPR 16-4-2 and is +/-4.4 dB with a 'k=2' coverage factor and a %95 confidence level.

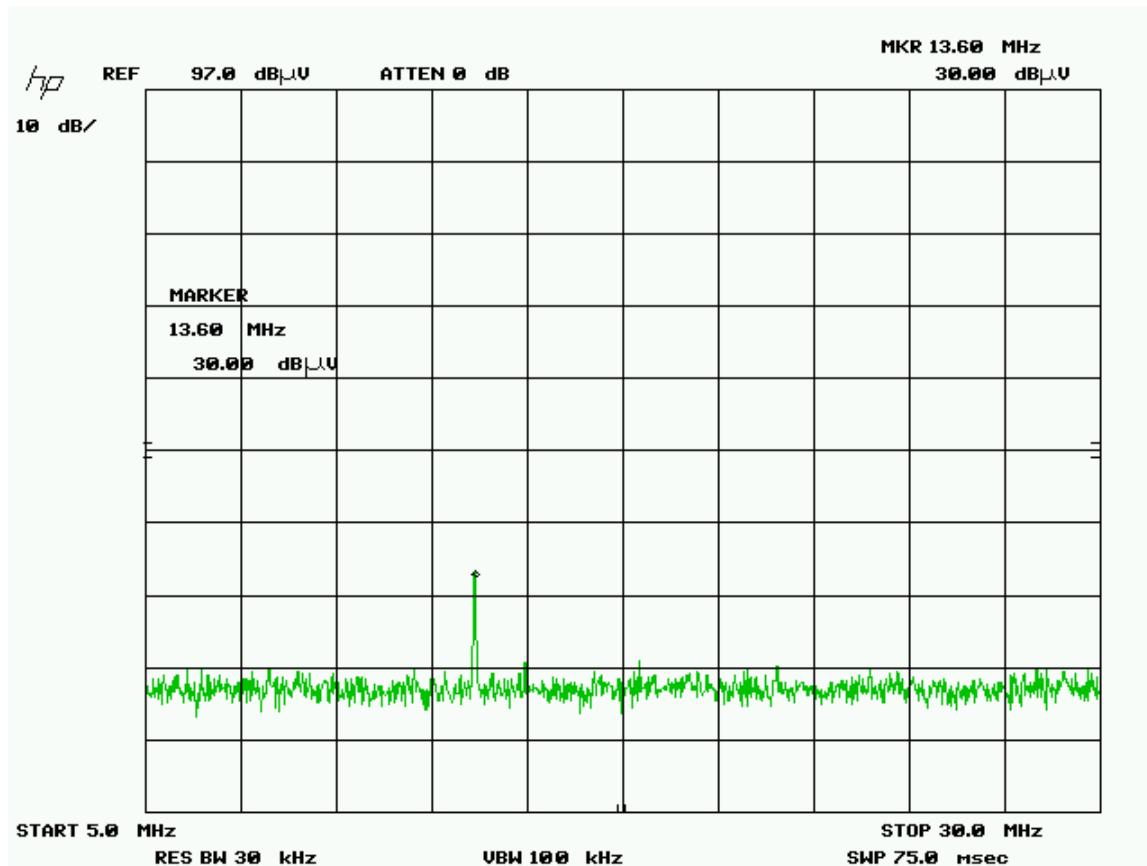
Preliminary Graphs

Note the graphs shown below are for graphical illustration only. For final measurements with the appropriate detector, please refer to the final measurement table where applicable. The graph shown below is a maximized peak measurement graph, measured with a resolution bandwidth greater than the final required detector and over a full 0-360 rotation. This peaking process is done as a worst case measurement. This process enables the detection of frequencies of concern for final measurement, and provides considerable time savings.

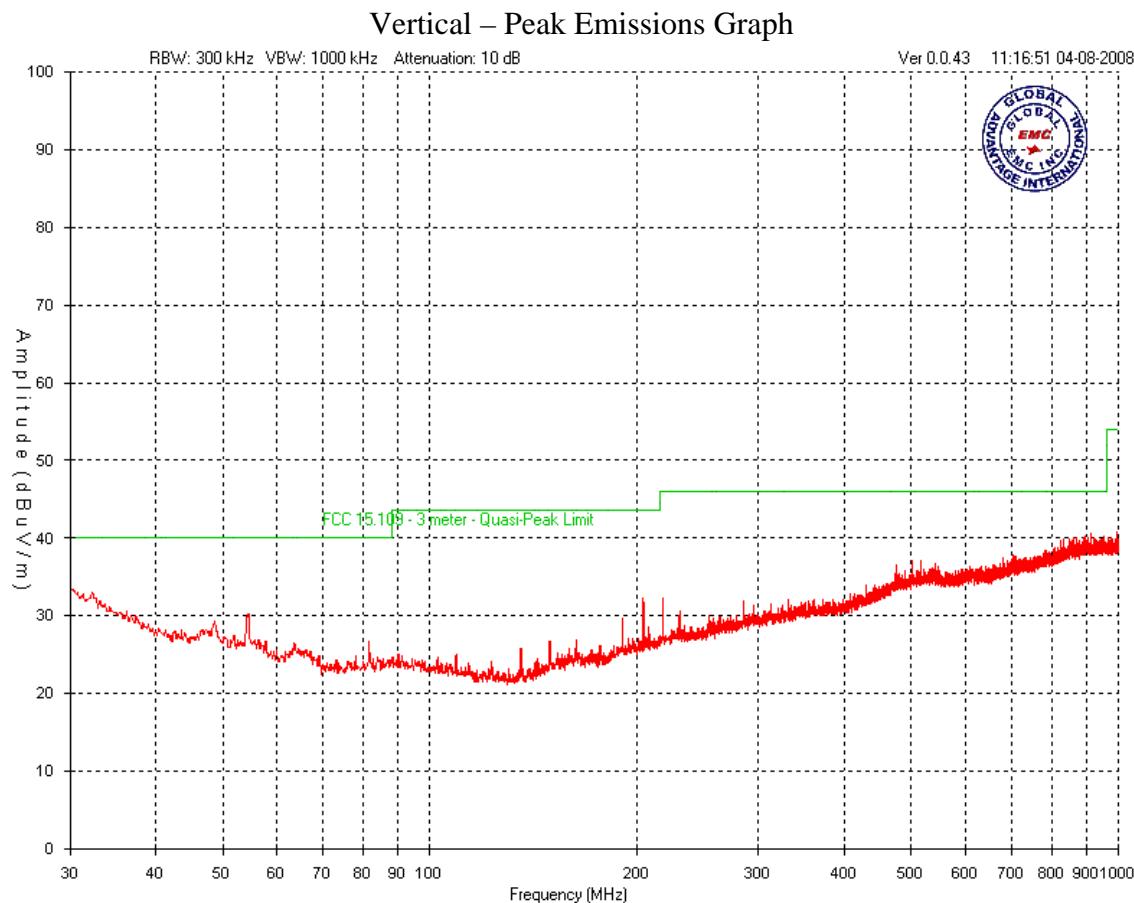
Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



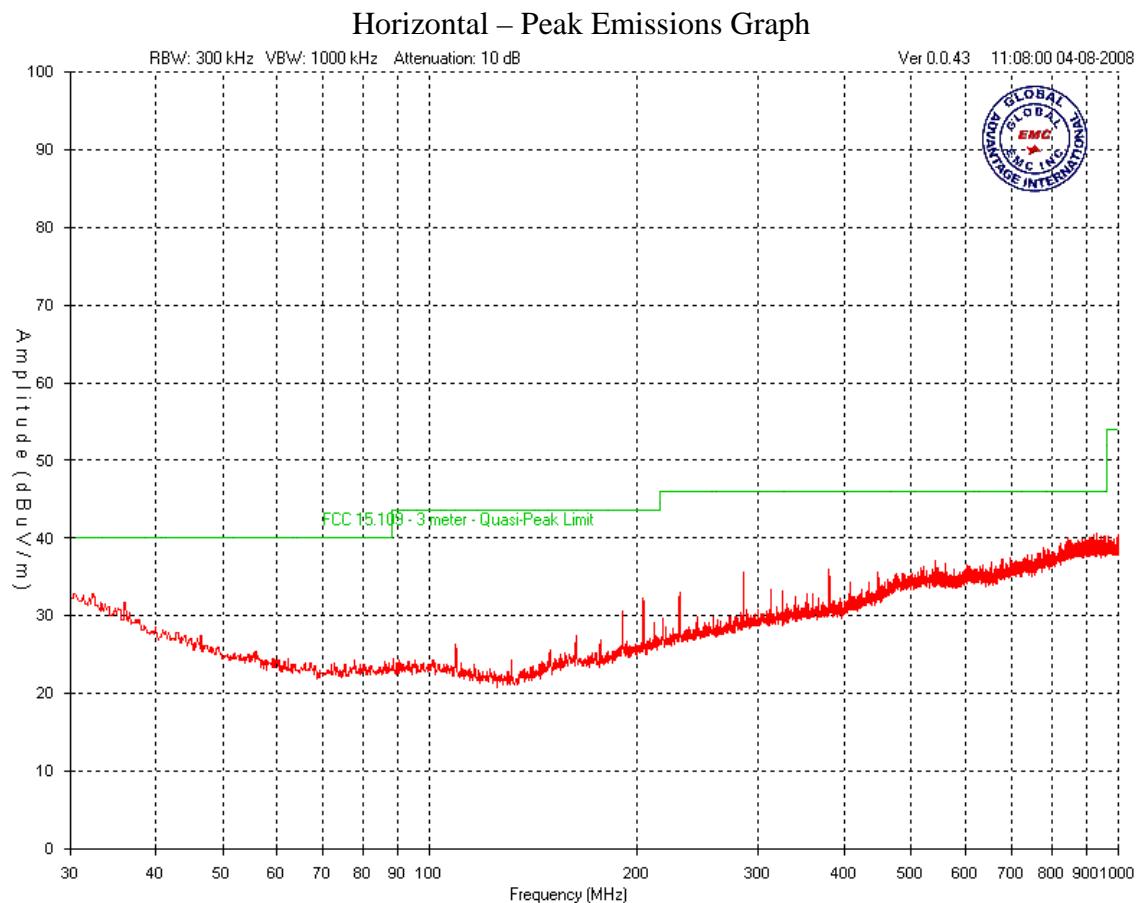
Maximized Raw Radiated Emissions below 30 MHz



Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



Client	Opty's Corporation	
Product	6352XP Reader	
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7	

Final Measurements

For information purposes, the worst case peak reading of intentional transmit compared to 15.209 limits is presented below.

Raw Signal (dBuV)	Loop Factor (dBs/m)	dBuA/m	dBuV/m	Limit (dBuV/m)	Margin	Comment
30	-16	14	65.5	69.5	4.0	Pass

No peak emissions were found to be within 6 dB of the 15.209 limits, therefore the peak readings are presented above as worst case.

Test Equipment List

Equipment	Model No.	Manufacturer	Last calibration date	Next calibration due date	Asset #
Spectrum Analyzer	8566B	HP	2006-08-09	2007-08-09	GEMC 6
Quasi Peak Adapter	85650A	HP	2006-08-07	2007-08-07	GEMC 7
Loop Antenna	EM 6871	Electro-Metrics	2007-08-16	2009-08-16	GEMC 70
Loop Antenna	EM 6872	Electro-Metrics	2007-08-16	2009-08-16	GEMC 71
BiLog Antenna	3142-C	ETS	2006-08-06	2008-08-06	GEMC 8
Attenuator 3 dB	FP-50-3	Trilithic	NCR	NCR	GEMC 40
Pre-Amplifier	PA-2.5-26	Vican	2006-09-12	2007-09-12	GEMC 9
RF Cable 7m	LMR-400-7M-50OHM-MN-MN	LexTec	NCR	NCR	GEMC 28
RF Cable 1m	LMR-400-1M-50OHM-MN-MN	LexTec	NCR	NCR	GEMC 29
RF Cable 0.5M	LMR-400-0.5M-50OHM-MN-MN	LexTec	NCR	NCR	GEMC 31

This report module is based on GEMC template "FCC - 15.209 - Radiated Emissions_Rev1.doc"

Client	Optys Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



RFID Emissions Mask

Purpose

The purpose of this test is to ensure that the RF energy unintentionally emitted from the EUT does not exceed the limits listed below as defined in the applicable test standard, as measured from a receiving antenna. This helps protect broadcast radio services such as television, AM radio, amateur radio, CB, and so on, from unwanted interference.

Limit(s) and Method

The limits are as defined in FCC Part 15, Section 15.225

Method is using a loop antenna and converting to voltage based on the impedance of free space.

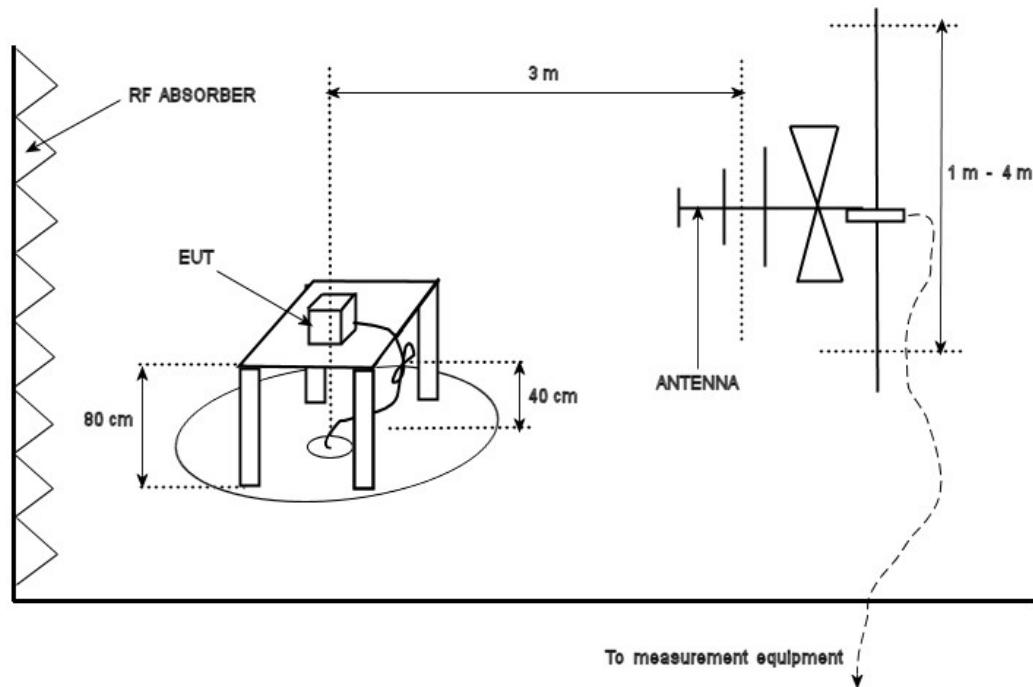
Frequency range (MHz)	Limit (uV/m @ 30 m)	Limit (dBuV/m @ 3 m)
13.110-13.410	106	80.5
13.410-13.553	334	90.5
13.553-13.567	15,848	124.0
13.567-13.710	334	90.5
13.710-14.010	106	80.5

¹Limit is with a Quasi Peak detector using bandwidths defined in CISPR16.

Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



Typical Radiated Emissions Setup



Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



Measurement Uncertainty

The expanded measurement uncertainty is calculated in accordance with CISPR 16-4-2 and is +/-4.4 dB with a 'k=2' coverage factor and a %95 confidence level.

Preliminary Graphs

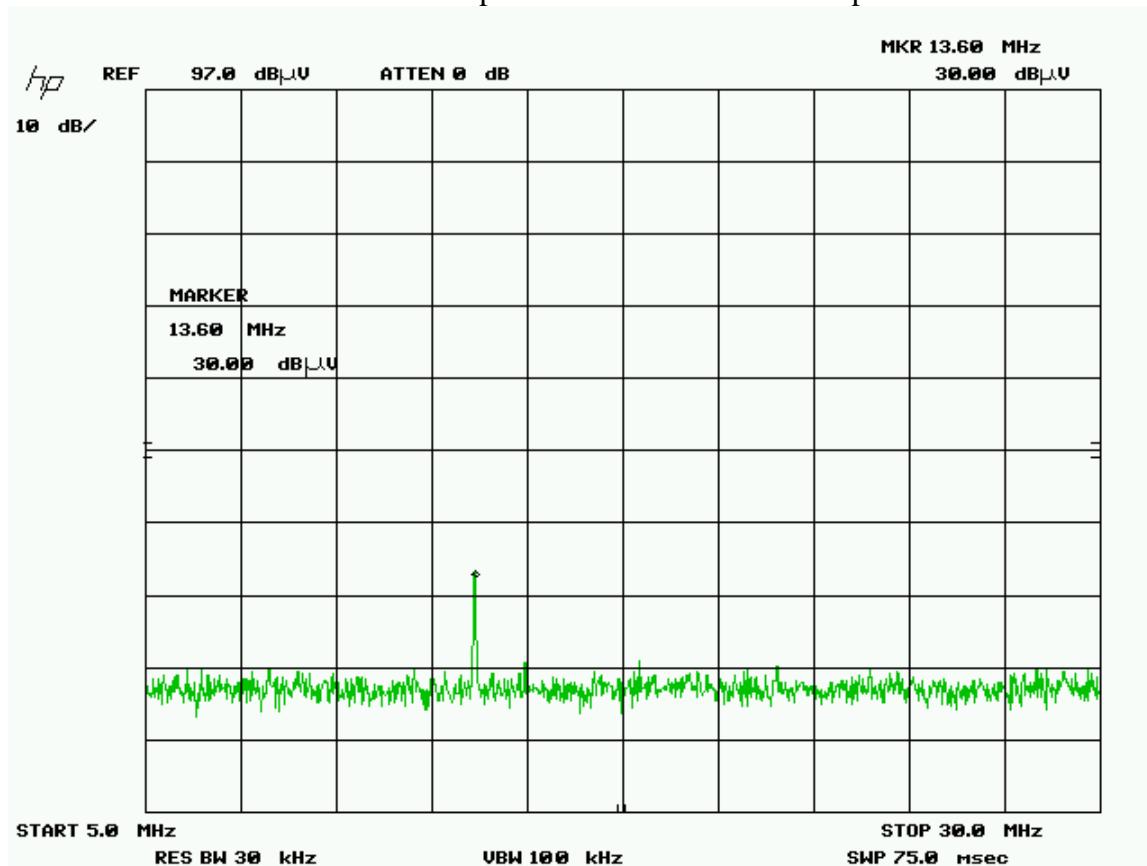
Note the graphs shown below are for graphical illustration. For final measurements, please refer to the final measurement table where applicable. The graph shown below is a maximized peak measurement graph, measured with a resolution bandwidth greater than the final required detector and over a full 0-360 rotation. Also the loop was orientated at 0 degrees and 90 degrees and a maximized reading is shown. This peaking process is done as a worst case measurement. This process enables the detection of frequencies of concern for final measurement, and provides considerable time savings.

In accordance with FCC Part 15, Subpart A, Section 15.31, an extrapolation factor of 40 dB/decade was used for frequencies below 30 MHz. For example for 3 meter measurements, an extrapolation factor 40 dB from 40 Log (3m / 30m) is applied.

Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



Maximized loop – Raw Peak Emissions Graph



Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



Final Measurements

For information purposes, the worst case peak reading(s) of intentional transmit compared to 15.209 limits is presented below. This represents 58.5 dB margin to the 15.225 limits at the same frequency.

This worst case reading(s) are as below.

Freq (MHz)	Raw Signal (dBuV)	Loop Factor (dBs/m)	dBuA/m	dBuV/m	Limit (dBuV/m)	Margin	Comment
13.56	30	-16	14	65.5	69.5	4.0	Pass

No peak emissions were detected that exceeded the 15.209 limits, therefore no Quasi-peak measurements were deemed necessary.

Client	Opty's Corporation	
Product	6352XP Reader	
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7	

Test Equipment List

Equipment	Model No.	Manufacturer	Last calibration date	Next calibration due date	Asset #
Spectrum Analyzer	8566B	HP	2006-08-09	2007-08-09	GEMC 6
Quasi Peak Adapter	85650A	HP	2006-08-07	2007-08-07	GEMC 7
Loop Antenna	EM 6871	Electro-Metrics	2007-08-16	2009-08-16	GEMC 70
Loop Antenna	EM 6872	Electro-Metrics	2007-08-16	2009-08-16	GEMC 71
Attenuator 3 dB	FP-50-3	Trilithic	NCR	NCR	GEMC 40
Pre-Amplifier	PA-2.5-26	Vican	2006-09-12	2007-09-12	GEMC 9
RF Cable 7m	LMR-400-7M-50OHM-MN-MN	LexTec	NCR	NCR	GEMC 28
RF Cable 1m	LMR-400-1M-50OHM-MN-MN	LexTec	NCR	NCR	GEMC 29
RF Cable 0.5M	LMR-400-0.5M-50OHM-MN-MN	LexTec	NCR	NCR	GEMC 31

This report module is based on GEMC template "FCC - 15.225 - RFID Emissions Mask_Rev1.doc"

Client	Optys Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



Maximum Permissible Exposure

Purpose

The purpose of this test is to ensure that the RF energy intentionally transmitted, in terms of power density emitted from the EUT at a stated operating distance does not exceed the limits listed below as defined in the applicable test standard, as calculated based upon readings obtained during testing. This helps protect human exposure to excessive RF fields.

Limit(s) and Method

The limits, as defined in FCC 1.1310 Table 1 (B) limits for general public exposure was applied. The limit for the frequency range of 1.3 MHz to 30 MHz was applied. This is a limit of 60.76 V/m, 161.5 mA/m, and 1.02 mW/cm². The distance used for calculations was 20cm, as this is the minimum distance an operator will be from the EUT during normal operation, as stated by the manufacturer.

Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



Results

The EUT passed the requirements. The EUT measured 0.64 V/m at 20 cm. The worst case calculated power density was 0.02 mW/cm², this is significantly under the 1.02 mW/cm² requirement. The EUT conducted output is 100 mW maximum and due to the proprietary antenna design, the antenna gain is undetermined.

Calculations

Method (radiated voltage), where PD is mW/cm² and E is in V/m.

$$PD = E/3770$$

$$PD = 0.64/3770$$

$$PD = 0.000119218 \text{ mW / cm}^2$$

Equipment	Model No.	Manufacturer	Last calibration date	Next calibration due date	Asset #
Field probe	FL 7006	AR	2006-12-09	2008-12-09	GEMC 25
Field Mon.	FM7004	AR	NCR	NCR	GEMC 13

Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



Temperature Frequency Stability

Purpose

The purpose of this test is to ensure that the RF energy unintentionally emitted from the EUT does not exceed the permitted bandwidth during extreme temperature variations. This helps protect radio broadcasts and receivers with spectrum nearby to the equipment under test from unwanted interference. This also helps ensure proper reception of the intended signal by ensuring the transmit frequency is correct in any temperature.

Limit(s) and Method

The limits are as defined in FCC Part 15, Section 15.225(e)

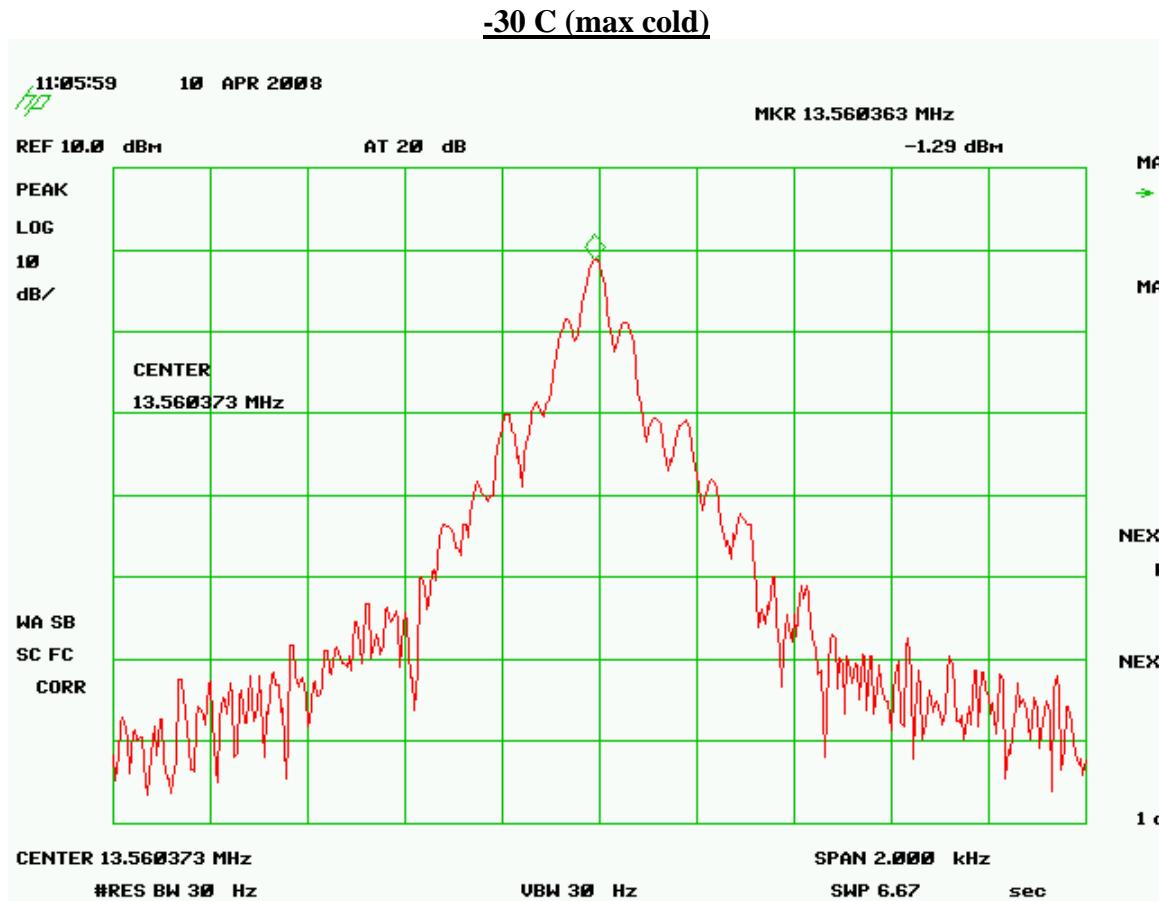
Frequency must be maintained from -20 C to +50 C. For information purposes, the EUT was additionally tested at -30C. The EUT is monitored at each 10 degree increment. At each temperature, the device is checked after a stabilization period required for the device to reach the temperature.

Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



Measurement Graphs

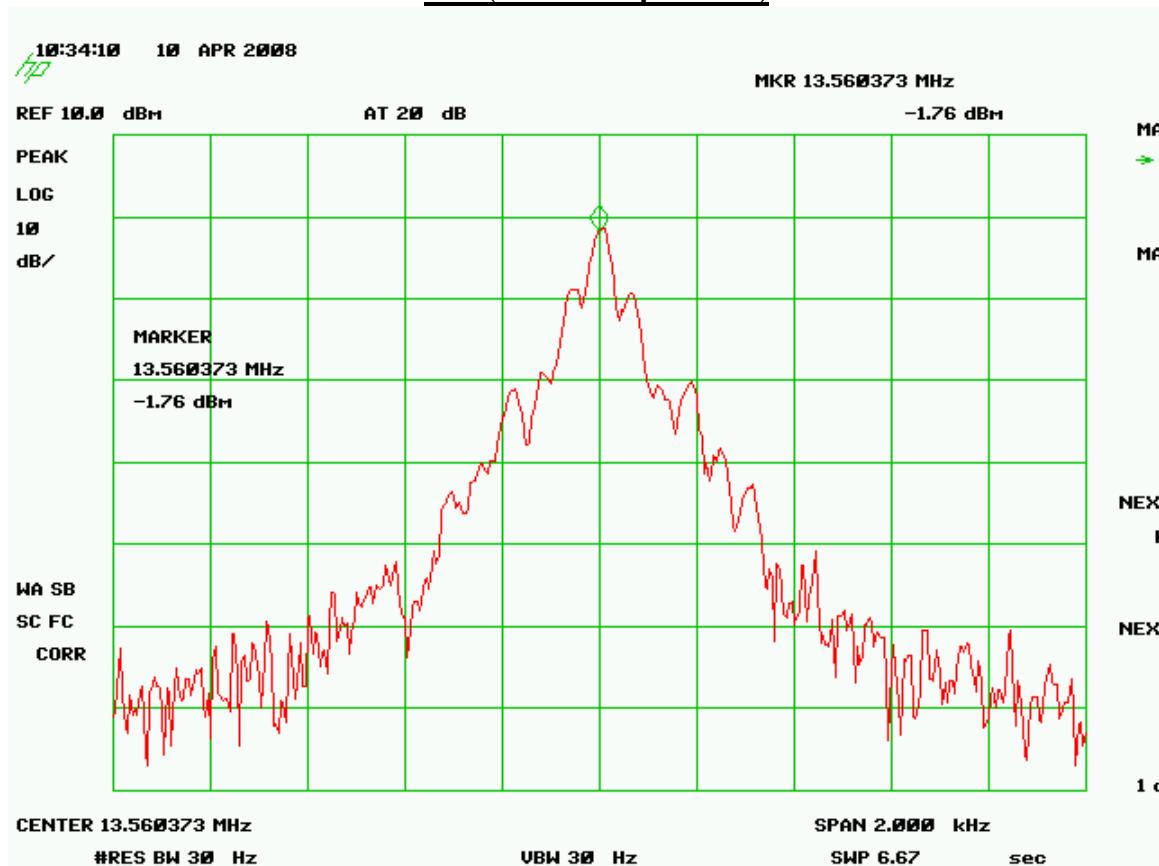
The worst case results are presented, with the frequency shown. The device was checked at each 10 degree increment of temperature



Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



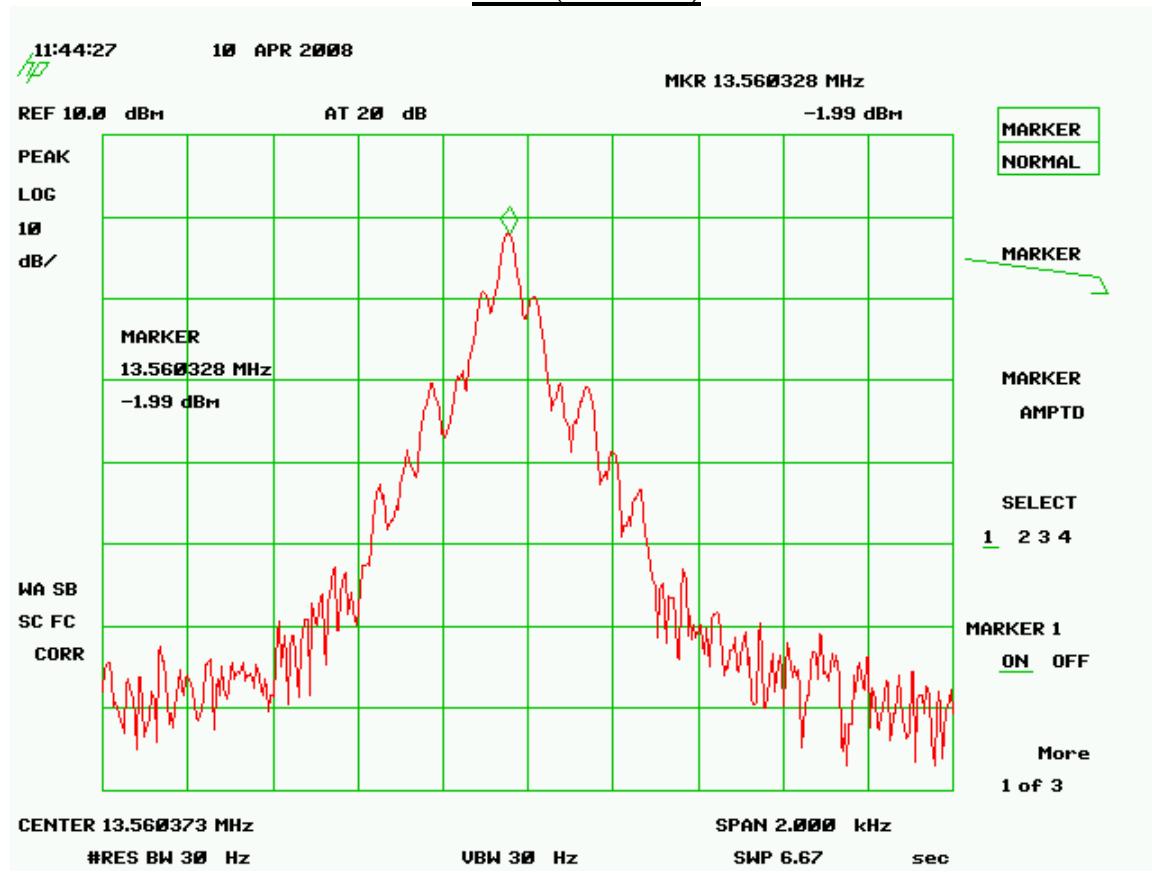
23C (Room temperature)



Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



+55C (max heat)



Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



Table

Temperature (Celsius)	Frequency (MHz)	%	Pass / Fail
-30	13.560363	0.00027	PASS
23	13.560373	0.00028	PASS
50	13.560320	0.00024	PASS

Note: This device uses crystal oscillator for it's frequency generation with a stated frequency stability of 30 ppm.

Client	Opty's Corporation	
Product	6352XP Reader	
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7	

Test Equipment List

Equipment	Model No.	Manufacturer	Last calibration date	Next calibration due date	Asset #
Spectrum Analyzer	8566B	HP	2006-08-09	2007-08-09	GEMC 6
Quasi Peak Adapter	85650A	HP	2006-08-07	2007-08-07	GEMC 7
Attenuator 20 dB	FP-50-20	Trilithic	NCR	NCR	GEMC 43
RF Cable 7m	LMR-400-7M-50OHM-MN-MN	LexTec	NCR	NCR	GEMC 28

This report module is based on GEMC template "FCC - 15.225 - RFID Freq Stab_Rev1.doc"

Client	Opty's Corporation	
Product	6352XP Reader	
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7	

Appendix A – Customer Provided Details

Client	Opty's Corporation	
Product	6352XP Reader	
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7	

Client Details	
Organization / Address	Opty's Corporation - 307 Evans Avenue, Toronto, Ontario
Contact	Jim Darling
Phone	416-207-9177
Email	jdarling@optys.com
EUT (Equipment Under Test) Details	
EUT Name (for report title)	6352XP Reader
EUT Model	NCR Variant
EUT revision	New product
Software version	2.37
Equipment category	Commercial - Used in Retail Machines
Input voltage range(s) (V)	9-15VDC
Frequency range(s) (Hz)	DC
Rated input current (A)	50 mA
Nominal power consumption (W)	500mW
Number of power supplies in EUT	1 DC-DC Buck Converter
Basic EUT functionality description	RFID Reader For Vending Machine
Modes of operation	Device is commanded by host to read and write passive RFID tags
Frequency of all clocks present in EUT	13.56MHz (RFID, MCU), 150KHz (DC-DC), ~20KHz PWM for Negative Voltage Pump
I/O cable description Specify length and type	1. Reverse SMA Cable to Antenna (included) - ~10ft
Available connectors on EUT	1. DC Input 2. General Purpose I/O (2 ports) with +5v/GND for Debug 3. RS-232 IN/OUT with +5V/GND 4. 6 pin Programming Header 5. Rev SMA Cable for Antenna Note: +5V is not for end user
Dimensions of product	L 15mm W 7.5mm H 1.5mm

Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



Appendix B – EUT and Test Setup Photographs

Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



Note: The photos in this test report are for information purposes only. Refer to FCC filed photos for certification photos.

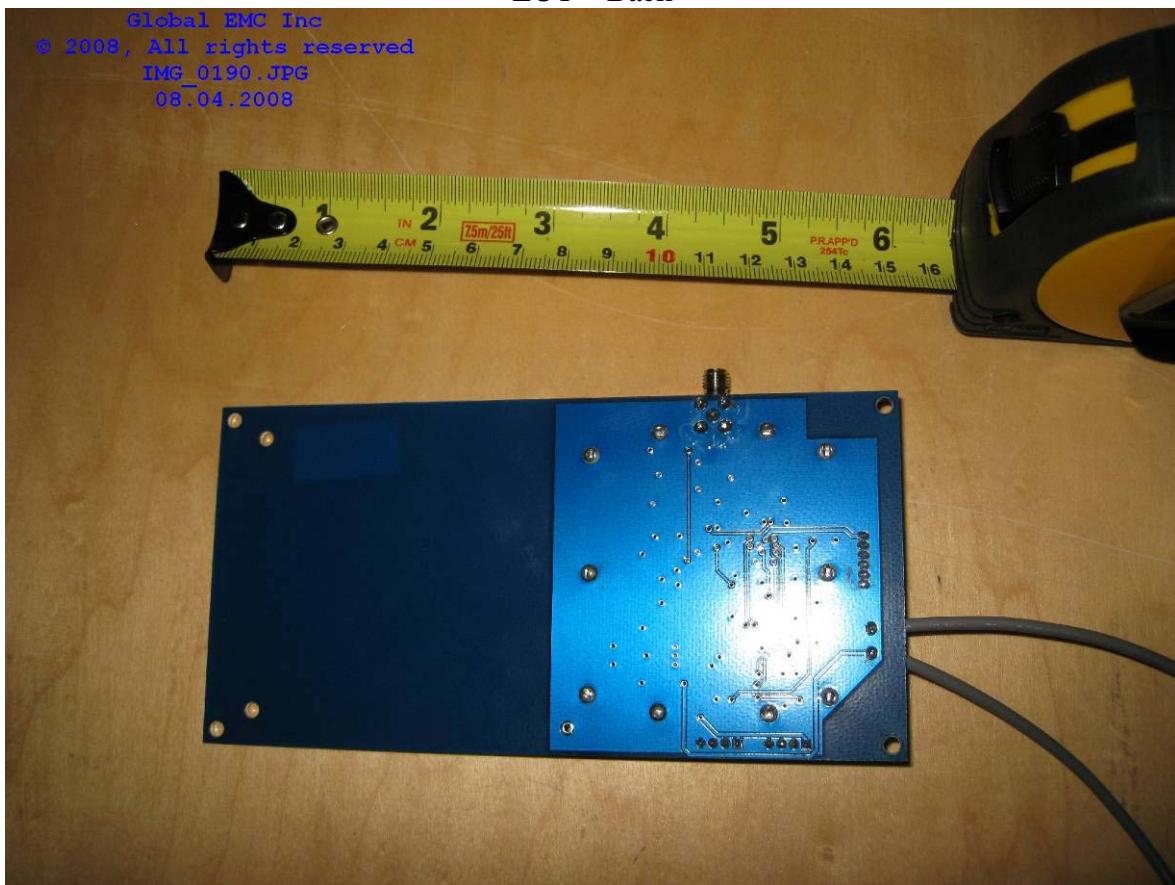
EUT – Front



Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



EUT – Back



Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



EUT – Antenna



Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



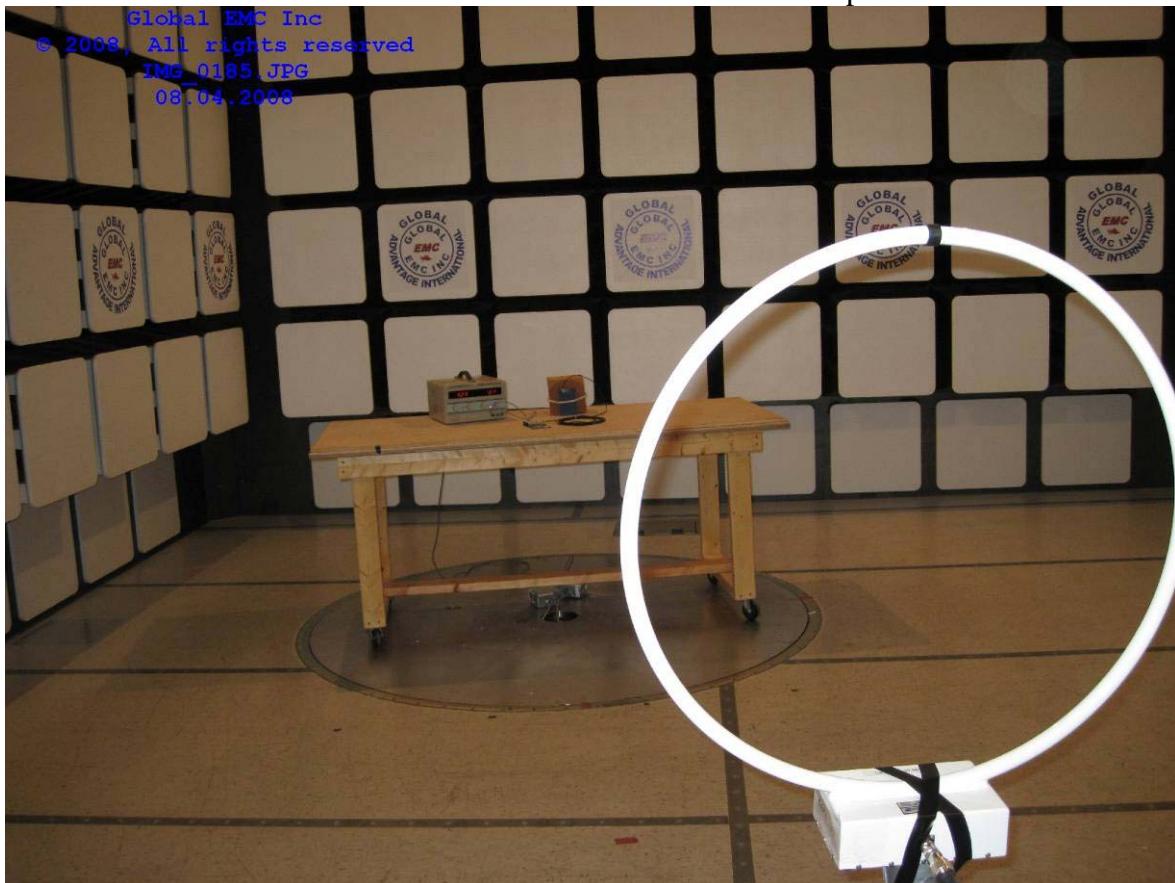
EUT – Antenna Port



Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



Radiated Emissions Below 30 MHz Setup



Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



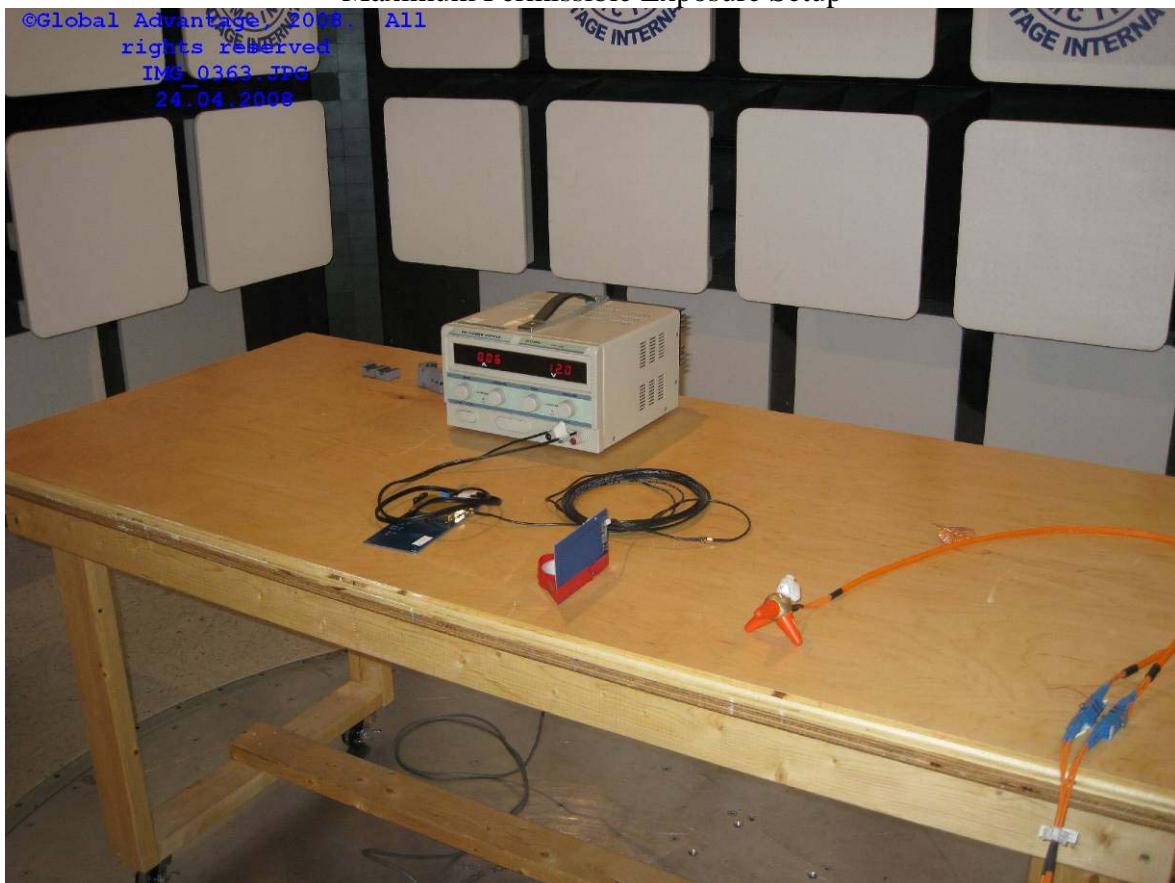
Radiated Emissions 30 MHz – 1 GHz Test Setup



Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



Maximum Permissible Exposure Setup



Client	Opty's Corporation
Product	6352XP Reader
Standard(s)	FCC Part 15 Subpart C 2007 & RSS-210: Issue 7



Temperature Frequency Stability

