

Magtek Incorporated

TEST REPORT FOR

NFC Secure Card Reader With Camera

Model: DynaProx BCR*

*(See Appendix A for Manufacturer Declaration)

Tested to The Following Standards:

FCC Part 15 Subpart C Section(s)

15.207 & 15.225
(13.110-14.010 MHz)

Report No.: 105871-10

Date of issue: October 29, 2021



Test Certificate # 803.01

This test report bears the accreditation symbol indicating that the testing performed herein meets the test and reporting requirements of ISO/IEC 17025 under the applicable scope of testing for CKC Laboratories, Inc.

We strive to create long-term, trust based relationships by providing sound, adaptive, customer first testing services. We embrace each of our customers' unique EMC challenges, not as an interruption to set processes, but rather as the reason we are in business.

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ADMINISTRATIVE INFORMATION

Test Report Information

REPORT PREPARED FOR:

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REPORT PREPARED BY:

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Mariposa, CA 95338

REPRESENTATIVE: Kevin Gin
Customer Reference Number: 30012697

Project Number: 105871

DATE OF EQUIPMENT RECEIPT:

October 6, 2021

DATE(S) OF TESTING:

October 6-12, 2021

Report Authorization

The test data contained in this report documents the observed testing parameters pertaining to and are relevant for only the equipment provided by the client, tested in the agreed upon operational mode(s) and configuration(s) as identified herein. Compliance assessment remains the client's responsibility. This report may not be used to claim product endorsement by A2LA or any government agencies. This test report has been authorized for release under quality control from CKC Laboratories, Inc.

A handwritten signature in black ink that reads "Steve Behm".

Steve Behm
Director of Quality Assurance & Engineering Services
CKC Laboratories, Inc.

Test Facility Information



Our laboratories are configured to effectively test a wide variety of product types. CKC utilizes first class test equipment, anechoic chambers, data acquisition and information services to create accurate, repeatable and affordable test results.

TEST LOCATION(S):
CKC Laboratories, Inc.
110 Olinda Place
Brea, CA 92823

Software Versions

CKC Laboratories Proprietary Software	Version
EMITest Emissions	5.03.20

Site Registration & Accreditation Information

Location	*NIST CB #	FCC	Canada	Japan
Canyon Park, Bothell, WA	US0103	US1024	3082C	A-0136
Brea, CA	US0103	US1024	3082D	A-0136
Fremont, CA	US0103	US1024	3082B	A-0136
Mariposa, CA	US0103	US1024	3082A	A-0136

*CKC's list of NIST designated countries can be found at: <https://standards.gov/cabs/designations.html>

SUMMARY OF RESULTS

Standard / Specification: FCC Part 15 Subpart C - 15.225

Test Procedure	Description	Modifications	Results
15.215(c)	Occupied Bandwidth	NA	Pass
15.225(a)-(c)	Field Strength of Fundamental	NA	Pass
15.225(e)	Frequency Stability	NA	Pass
15.225(d)	Field Strength of Spurious Emissions	NA	Pass
15.207	AC Conducted Emissions	NA	Pass

NA = Not Applicable

ISO/IEC 17025 Decision Rule

The declaration of pass or fail herein is based upon assessment to the specification(s) listed above, including where applicable, assessment of measurement uncertainties. For performance related tests, equipment was monitored for specified criteria identified in that section of testing.

Modifications During Testing

This list is a summary of the modifications made to the equipment during testing.

Summary of Conditions

No modifications were made during testing.

Modifications listed above must be incorporated into all production units.

Conditions During Testing

This list is a summary of the conditions noted to the equipment during testing.

Summary of Conditions

None

EQUIPMENT UNDER TEST (EUT)

During testing, numerous configurations may have been utilized. The configurations listed below support compliance to the standard(s) listed in the Summary of Results section.

Configuration 1

Equipment Tested:

Device	Manufacturer	Model #	S/N
NFC Secure Card Reader with Camera	Magtek Incorporated	DynaProx BCR	B669964

Support Equipment:

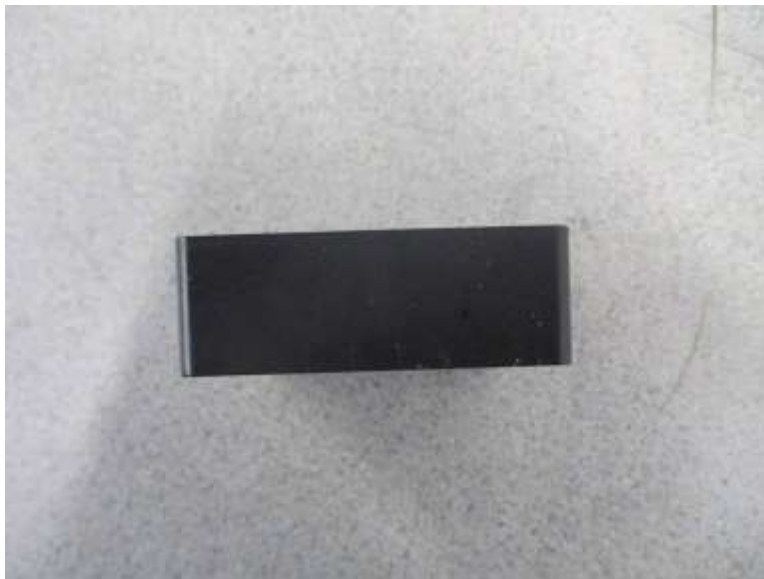
Device	Manufacturer	Model #	S/N
Laptop	Dell	Latitude E6230	1283
Laptop Power Supply	Dell	HA65NM130	130084-11

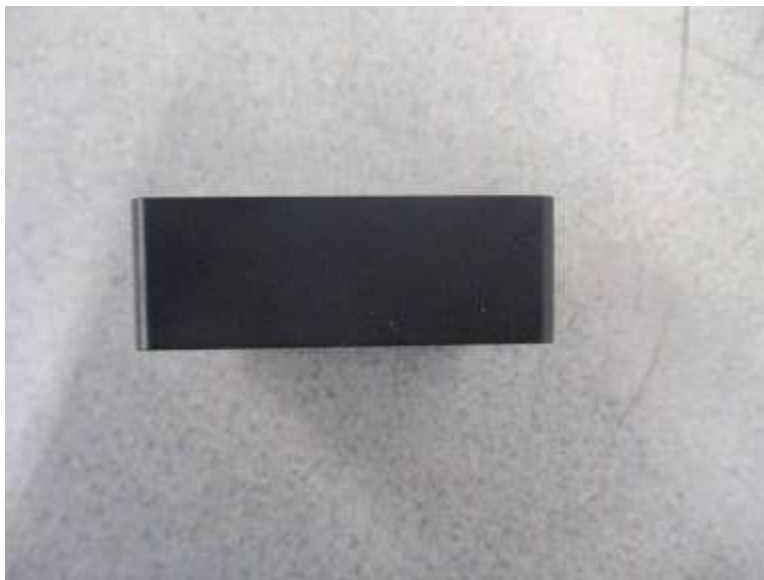
General Product Information:

Product Information	Manufacturer-Provided Details
Equipment Type:	Stand-Alone Equipment
Modulation Type(s):	OOK
Maximum Duty Cycle:	98%
Antenna Type(s) and Gain:	47x55 mm Loop / NA
Antenna Connection Type:	Integral
Nominal Input Voltage:	5V DC USB
Firmware / Software used for Test:	FW: DynaProx_PRD EMC_LAB_test_mainapp_generated.bin SW: DynaFlex-DTE.exe
The validity of results is dependent on the stated product details, the accuracy of which the manufacturer assumes full responsibility.	

EUT Photo(s)



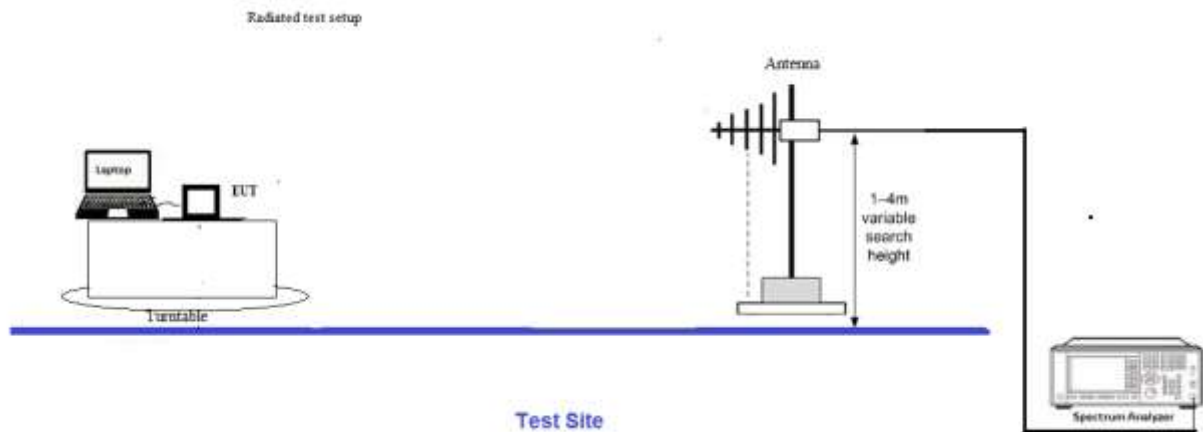




Support Equipment Photo(s)



Block Diagram of Test Setup(s)



FCC Part 15 Subpart C

15.215(c) Occupied Bandwidth (20dB BW)

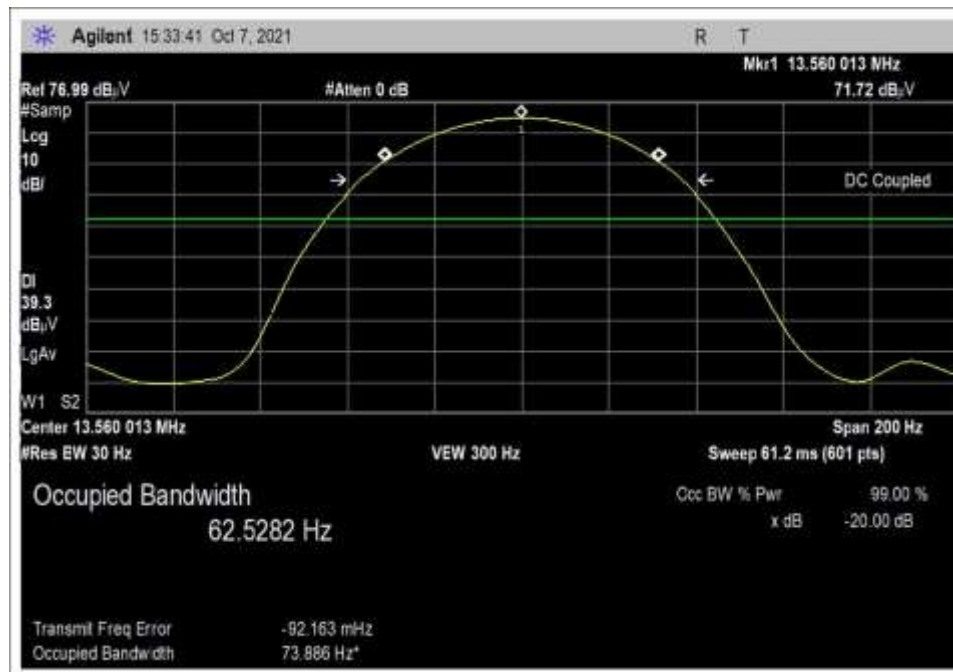
Test Setup/Conditions			
Test Location:	Brea Lab A	Test Engineer:	E. Wong
Test Method:	ANSI C63.10 (2013)	Test Date(s):	10/7/2021
Configuration:	1		
Test Setup:	The equipment under test (EUT) is placed on Styrofoam block and connected to a support laptops DB-9 serial port and USB port. The EUT is set in constant transmit mode with a card placed in the field. The fundamental signal is modulated.		

Environmental Conditions			
Temperature (°C)	23	Relative Humidity (%):	56

Test Equipment					
Asset#	Description	Manufacturer	Model	Cal Date	Cal Due
02869	Spectrum Analyzer	Agilent	E4440A	8/16/2021	8/16/2022
P05198	Cable	Belden	8268	12/21/2020	12/21/2022
00314	Loop Antenna	EMCO	6502	4/13/2020	4/13/2022

Test Data Summary					
Frequency (MHz)	Antenna Port	Modulation	Measured (kHz)	Limit (kHz)	Results
13.56	1	OOK	62.5	None	NA

Plot(s)



Test Setup Photo(s)





X Axis



Y Axis



Z Axis

15.225(a)-(c) Field Strength of Fundamental

Test Data Summary - Voltage Variations

Frequency (MHz)	Modulation / Ant Port	V _{Minimum} (dBuV/m@30m)	V _{Nominal} (dBuV/m@30m)	V _{Maximum} (dBuV/m@30m)	Max Deviation from V _{Nominal} (dB)
13.56	OOK/ Loop	40.3	40.3	40.1	0.2

Test performed using operational mode with the highest output power, representing worst case.

Parameter Definitions:

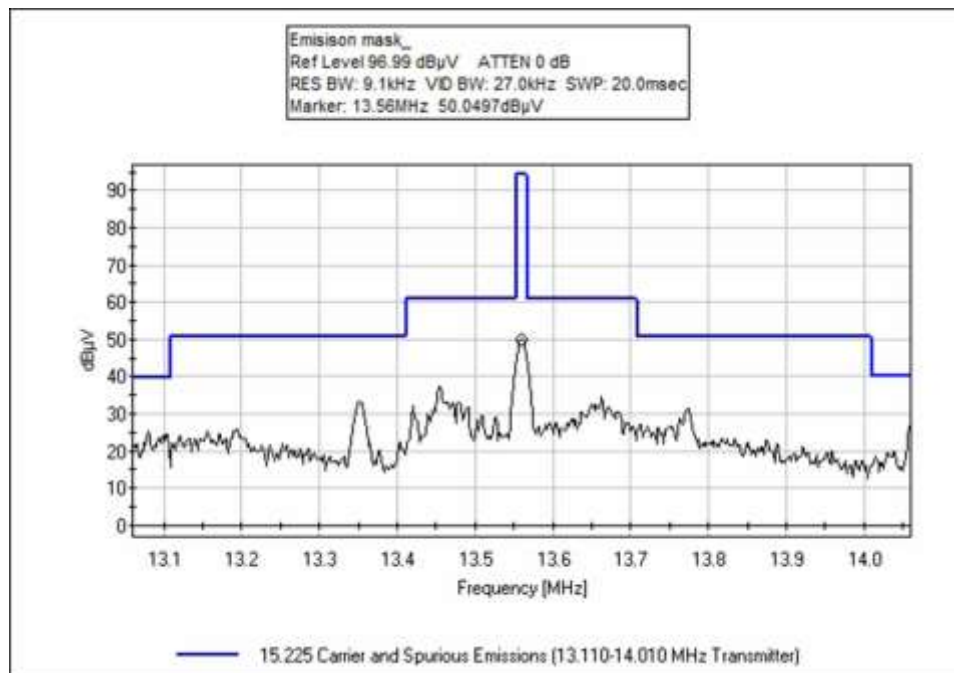
Measurements performed at input voltage V_{Nominal} ± 15%.

Parameter	Value
V _{Nominal} :	5.00Vdc
V _{Minimum} :	4.25Vdc
V _{Maximum} :	5.75Vdc

Test Data Summary – Radiated Field Strength Measurement

Frequency (MHz)	Modulation	Ant. Type	Measured (dBuV/m @ 30m)	Limit (dBuV/m @ 30m)	Results
13.56	OOK	loop	40.3	≤84	Pass

Emissions Mask Data



Test Setup / Conditions / Data

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA • 714 993 6112
 Customer: **Magtek Incorporated**
 Specification: **15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**
 Work Order #: **105871** Date: 10/8/2021
 Test Type: **Radiated Scan** Time: 16:11:35
 Tested By: E. Wong Sequence#: 2
 Software: EMITest 5.03.20

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

The equipment under test (EUT) is placed on Styrofoam block and connected to a support laptops DB-9 serial port and USB port.

The EUT is set in constant transmit mode with a card placed in the field. The fundamental signal is modulated. The manufacturer declares the highest EUT frequency generated or used is 27.12MHz

Frequency range of data sheet is 9kHz-30MHz

RBW=9 kHz

VBW= 27kHz

Test environment conditions:

Temperature: 23°C

Relative Humidity: 57%

Pressure: 99kPa

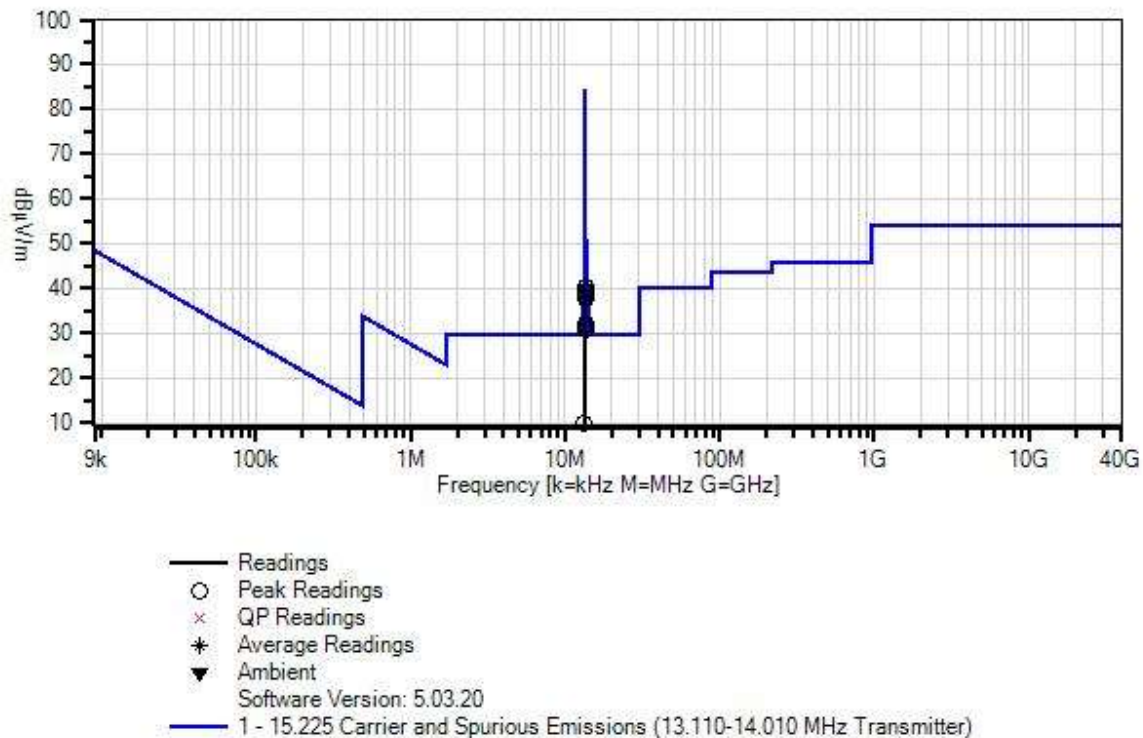
Emission profile of the EUT rotated along three orthogonal axes was investigated.

Recorded data represent worse case emission.

Site A

Test method ANSI C63.10-2013

Magtek Incorporated W/O#: 105871 Sequence#: 2 Date: 10/8/2021
15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter) Test Distance: 10 Meters Parallel



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP05198	Cable-Amplitude +15C to +45C (dB)	8268	12/21/2020	12/21/2022
T2	AN00314	Loop Antenna	6502	4/13/2020	4/13/2022
T3	AN02869	Spectrum Analyzer	E4440A	8/16/2021	8/16/2022

Measurement Data:

Reading listed by margin.

Test Distance: 10 Meters

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB		dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	13.110M	20.0	+0.6	+8.2	+0.0			-19.1	9.7	29.5	-19.8	Paral
2	14.000M	18.0	+0.6	+8.0	+0.0			-19.1	7.5	40.5	-33.0	Paral
3	13.560M	50.7	+0.6	+8.1	+0.0			-19.1	40.3	84.0	-43.7	Paral
										X		
4	13.560M	50.6	+0.6	+8.1	+0.0			-19.1	40.2	84.0	-43.8	Paral
										Y		
5	13.560M	49.7	+0.6	+8.1	+0.0			-19.1	39.3	84.0	-44.7	Perpe
										Y		
6	13.560M	49.6	+0.6	+8.1	+0.0			-19.1	39.2	84.0	-44.8	Groun
										Y		
7	13.560M	48.5	+0.6	+8.1	+0.0			-19.1	38.1	84.0	-45.9	Groun
										X		
8	13.560M	48.0	+0.6	+8.1	+0.0			-19.1	37.6	84.0	-46.4	Perpe
										X		
9	13.560M	42.4	+0.6	+8.1	+0.0			-19.1	32.0	84.0	-52.0	Groun
										Z		
10	13.561M	42.2	+0.6	+8.1	+0.0			-19.1	31.8	84.0	-52.2	Paral
										Z		
11	13.560M	41.2	+0.6	+8.1	+0.0			-19.1	30.8	84.0	-53.2	Perpe
										Z		

Test Setup Photo(s)



Temperature Test Setup





X Axis



Y Axis



Z Axis

15.225(e) Frequency Stability

Test Setup/Conditions			
Test Location:	Brea Lab A	Test Engineer:	E. Wong
Test Method:	ANSI C63.10 (2013)	Test Date(s):	10/12/2021
Configuration:	1		
Test Setup:	The equipment under test (EUT) is placed on Styrofoam block and connected to a support laptops DB-9 serial port and USB port. The EUT is set in constant transmit mode with a card placed in the field. The fundamental signal is modulated. Measurement made with the EUT placed in temperature chamber, and the relative field strength is measured with a near field probe. Reported frequency in data summary below is -6dB point.		

Environmental Conditions			
Temperature (°C)	23.4	Relative Humidity (%):	18

Test Equipment					
Asset#	Description	Manufacturer	Model	Cal Date	Cal Due
01878	Temperature Chamber	Thermotron Corp.	S 1.2 Mini-Max	3/30/2021	3/30/2023
06089	DMM	Fluke	88	11/12/2019	11/12/2021
P05947	Thermometer	Fluke	51	4/28/2020	4/28/2022
02869	Spectrum Analyzer	Agilent	E4440A	8/16/2021	8/16/2022
P05198	Cable	Belden	8268	12/21/2020	12/21/2022
00314	Loop Antenna	EMCO	6502	4/13/2020	4/13/2022

Test Data Summary					
Temperature (°C)	Voltage	Frequency (MHz) (at -6dB point)	Deviation (%)	Limit (%)	Results
-20	V _{Nominal}	13.559837	0.00044	±0.01	Pass
-10	V _{Nominal}	13.559847	0.00052	±0.01	
0	V _{Nominal}	13.559837	0.00044	±0.01	
10	V _{Nominal}	13.559817	0.00029	±0.01	
20	V _{Minimum}	13.559773	0.00003	±0.01	
20	V _{Nominal}	13.559777	0.00000	±0.01	
20	V _{Maximum}	13.559777	0.00000	±0.01	
30	V _{Nominal}	13.559787	0.00007	±0.01	
40	V _{Nominal}	13.559803	0.00019	±0.01	
50	V _{Nominal}	13.559843	0.00049	±0.01	
Nominal Frequency:		13.559777			

Transmit frequency = 13.560013F

Parameter Definitions:

Measurements performed at input voltage $V_{\text{nominal}} \pm 15\%$.

Parameter	Value
V_{Nominal} :	5.00 Vdc
V_{Minimum} :	4.25 Vdc
V_{Maximum} :	5.75 Vdc

Test Setup Photo(s)



15.225(d) Radiated Emissions & Band Edge

Test Setup / Conditions/ Data

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA • 714 993 6112
 Customer: **Magtek Incorporated**
 Specification: **15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**
 Work Order #: **105871** Date: 10/7/2021
 Test Type: **Radiated Scan** Time: 11:38:25
 Tested By: E. Wong Sequence#: 2
 Software: EMITest 5.03.20

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

The equipment under test (EUT) is placed on Styrofoam block and connected to a support laptops DB-9 serial port and USB port.

The EUT is set in constant transmit mode with a card placed in the field. The fundamental signal is modulated. The manufacturer declares the highest EUT frequency generated or used is 27.12MHz

Frequency range of data sheet is 9kHz-30MHz

RBW=9 kHz

VBW= 27kHz

Test environment conditions:

Temperature: 23°C

Relative Humidity: 57%

Pressure: 99kPa

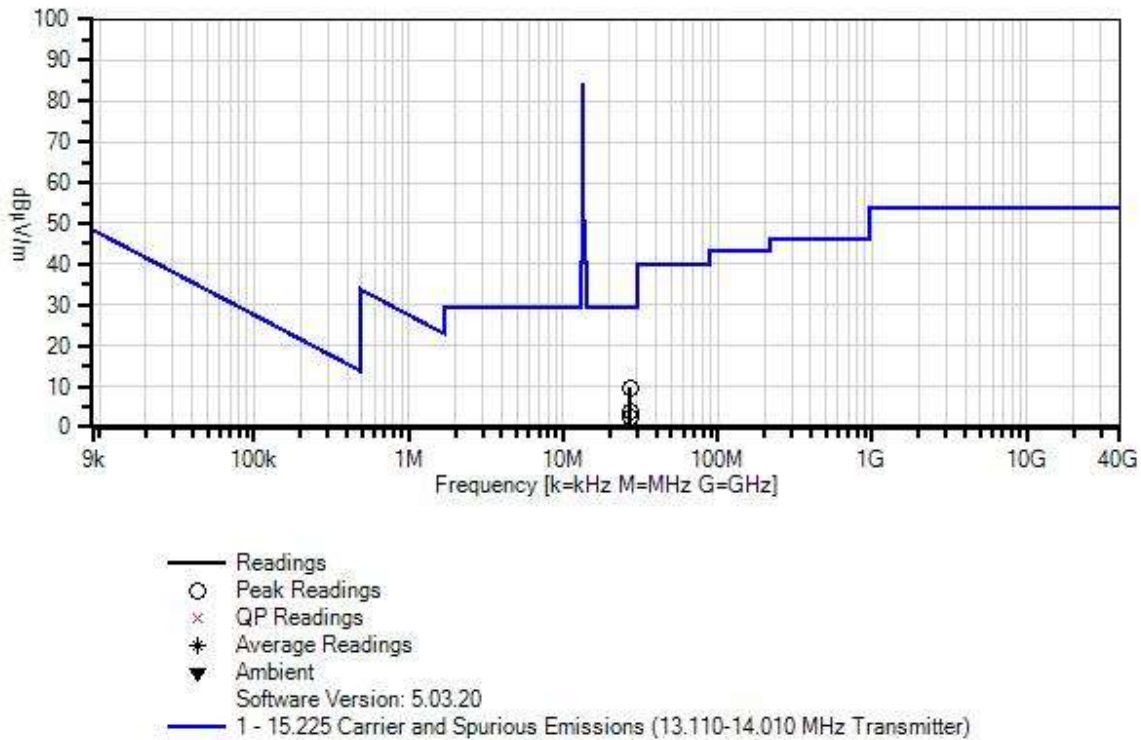
Emission profile of the EUT rotated along three orthogonal axes was investigated.

Recorded data represent worse case emission.

Site A

Test method ANSI C63.10-2013

Magtek Incorporated W/O#: 105871 Sequence#: 2 Date: 10/7/2021
15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter) Test Distance: 10 Meters Parallel



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP05198	Cable-Amplitude +15C to +45C (dB)	8268	12/21/2020	12/21/2022
T2	AN00314	Loop Antenna	6502	4/13/2020	4/13/2022
T3	AN02869	Spectrum Analyzer	E4440A	8/16/2021	8/16/2022

Measurement Data:

Reading listed by margin.

Test Distance: 10 Meters

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	27.120M	22.0	+0.8	+6.1	+0.0		-19.1	9.8	29.5	-19.7	Perpe
								X			
2	27.120M	16.0	+0.8	+6.1	+0.0		-19.1	3.8	29.5	-25.7	Groun
								X			
3	27.120M	14.6	+0.8	+6.1	+0.0		-19.1	2.4	29.5	-27.1	Paral
								X			



Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA • 714 993 6112
 Customer: **Magtek Incorporated**
 Specification: **15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**
 Work Order #: **105871** Date: 10/6/2021
 Test Type: **Radiated Scan** Time: 17:40:42
 Tested By: S. Yamamoto Sequence#: 1
 Software: EMITest 5.03.20

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

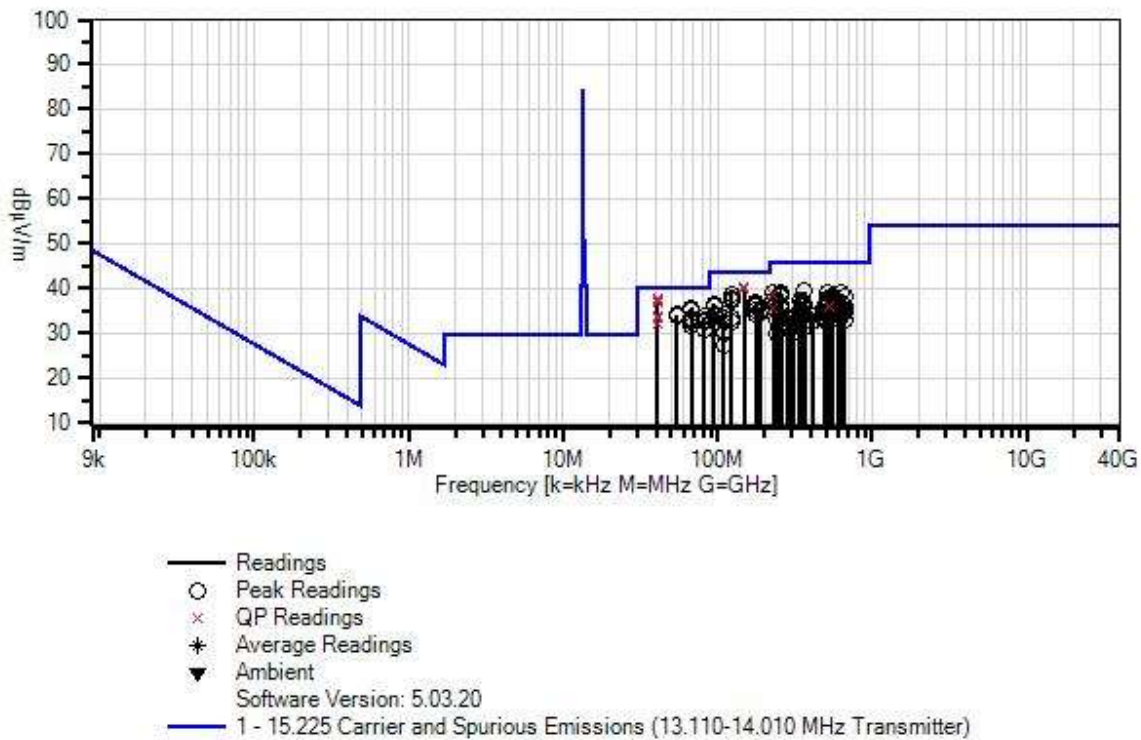
Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

The equipment under test (EUT) is placed on Styrofoam block and connected to a support laptops DB-9 serial port and USB port. The EUT is set in constant transmit mode with a card placed in the field. The fundamental signal is modulated. The manufacturer declares the highest EUT frequency generated or used is 27.12MHz Frequency range of data sheet is 30MHz to 1000MHz. RBW=120kHz VBW=1.2MHz Test environment conditions: Temperature:22°C Relative Humidity: 57% Pressure: 99kPa Emission profile of the EUT rotated along three orthogonal axes was investigated. Recorded data represent worse case emission. Site A Test method ANSI C63.10-2013
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Magtek Incorporated W/O#: 105871 Sequence#: 1 Date: 10/6/2021
15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter) Test Distance: 3 Meters Vert



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	4/29/2020	4/29/2022
T1	AN00851	Biconilog Antenna	CBL6111C	4/14/2020	4/14/2022
T2	ANP05505	Attenuator	NAT-6	5/26/2021	5/26/2023
T3	ANP05050	Cable	RG223/U	12/24/2020	12/24/2022
T4	AN00309	Preamplifier	8447D	12/24/2019	12/24/2021
T5	ANP05198	Cable-Amplitude +15C to +45C (dB)	8268	12/21/2020	12/21/2022
T6	AN02869	Spectrum Analyzer	E4440A	8/16/2021	8/16/2022

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 T5 dB	T2 T6 dB	T3 dB	T4 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	40.680M	45.1	+13.4	+6.1	+0.1	-28.1	+0.0	37.7	40.0	-2.3	Vert
	QP		+1.1	+0.0					x-axis		
2	40.680M	44.8	+13.4	+6.1	+0.1	-28.1	+0.0	37.4	40.0	-2.6	Vert
	QP		+1.1	+0.0					z-axis		
3	40.680M	44.3	+13.4	+6.1	+0.1	-28.1	+0.0	36.9	40.0	-3.1	Vert
	QP		+1.1	+0.0					y-axis		
^	40.680M	45.3	+13.4	+6.1	+0.1	-28.1	+0.0	37.9	40.0	-2.1	Vert
			+1.1	+0.0					x-axis		
^	40.680M	45.2	+13.4	+6.1	+0.1	-28.1	+0.0	37.8	40.0	-2.2	Vert
			+1.1	+0.0					z-axis		
^	40.680M	44.8	+13.4	+6.1	+0.1	-28.1	+0.0	37.4	40.0	-2.6	Vert
			+1.1	+0.0					y-axis		
7	149.160M	48.8	+11.2	+6.1	+0.1	-28.0	+0.0	40.3	43.5	-3.2	Vert
	QP		+2.1	+0.0					x		
^	149.160M	51.1	+11.2	+6.1	+0.1	-28.0	+0.0	42.6	43.5	-0.9	Vert
			+2.1	+0.0					x		
^	149.160M	44.5	+11.2	+6.1	+0.1	-28.0	+0.0	36.0	43.5	-7.5	Vert
			+2.1	+0.0					y		
^	149.160M	44.1	+11.2	+6.1	+0.1	-28.0	+0.0	35.6	43.5	-7.9	Vert
			+2.1	+0.0					z		
11	149.160M	48.2	+11.2	+6.1	+0.1	-28.0	+0.0	39.7	43.5	-3.8	Horiz
	QP		+2.1	+0.0					y		
12	149.160M	48.2	+11.2	+6.1	+0.1	-28.0	+0.0	39.7	43.5	-3.8	Horiz
	QP		+2.1	+0.0					x		
^	149.160M	53.6	+11.2	+6.1	+0.1	-28.0	+0.0	45.1	43.5	+1.6	Horiz
			+2.1	+0.0					x		
^	149.160M	49.8	+11.2	+6.1	+0.1	-28.0	+0.0	41.3	43.5	-2.2	Horiz
			+2.1	+0.0					y		
^	149.160M	46.9	+11.2	+6.1	+0.1	-28.0	+0.0	38.4	43.5	-5.1	Horiz
			+2.1	+0.0					z		
16	67.800M	50.1	+6.0	+6.1	+0.1	-28.1	+0.0	35.6	40.0	-4.4	Horiz
			+1.4	+0.0					x		
17	122.037M	47.2	+11.4	+6.1	+0.1	-28.0	+0.0	38.7	43.5	-4.8	Horiz
			+1.9	+0.0					x		
18	67.800M	49.5	+6.0	+6.1	+0.1	-28.1	+0.0	35.0	40.0	-5.0	Vert
			+1.4	+0.0					x		
19	54.240M	47.6	+7.3	+6.1	+0.1	-28.1	+0.0	34.2	40.0	-5.8	Vert
			+1.2	+0.0					x		
20	54.240M	47.5	+7.3	+6.1	+0.1	-28.1	+0.0	34.1	40.0	-5.9	Vert
			+1.2	+0.0					y		
21	122.040M	46.1	+11.4	+6.1	+0.1	-28.0	+0.0	37.6	43.5	-5.9	Vert
			+1.9	+0.0					x		
22	40.680M	41.4	+13.4	+6.1	+0.1	-28.1	+0.0	34.0	40.0	-6.0	Horiz
	QP		+1.1	+0.0					y-axis		
23	122.040M	45.8	+11.4	+6.1	+0.1	-28.0	+0.0	37.3	43.5	-6.2	Horiz
			+1.9	+0.0					z		
24	122.040M	45.7	+11.4	+6.1	+0.1	-28.0	+0.0	37.2	43.5	-6.3	Vert
			+1.9	+0.0					z		

25	54.240M	47.1	+7.3 +1.2	+6.1 +0.0	+0.1	-28.1	+0.0	33.7	40.0 z	-6.3	Vert
26	81.360M	46.4	+7.7 +1.5	+6.1 +0.0	+0.1	-28.1	+0.0	33.7	40.0 z	-6.3	Vert
27	176.280M	47.3	+9.1 +2.3	+6.1 +0.0	+0.2	-28.0	+0.0	37.0	43.5 y	-6.5	Vert
28	40.680M QP	40.9	+13.4 +1.1	+6.1 +0.0	+0.1	-28.1	+0.0	33.5	40.0 x-axis	-6.5	Horiz
29	366.126M	42.1	+15.3 +3.5	+6.2 +0.0	+0.2	-27.9	+0.0	39.4	46.0 z	-6.6	Horiz
30	67.801M	47.8	+6.0 +1.4	+6.1 +0.0	+0.1	-28.1	+0.0	33.3	40.0 y	-6.7	Horiz
31	230.521M	46.8	+11.2 +2.7	+6.1 +0.0	+0.2	-27.9	+0.0	39.1	46.0 x	-6.9	Vert
32	515.275M	37.8	+18.3 +4.2	+6.2 +0.0	+0.3	-27.7	+0.0	39.1	46.0 z	-6.9	Vert
33	94.920M	47.2	+9.4 +1.7	+6.1 +0.0	+0.1	-28.0	+0.0	36.5	43.5 x	-7.0	Vert
34	257.639M	45.1	+12.7 +2.8	+6.1 +0.0	+0.2	-27.9	+0.0	39.0	46.0 x	-7.0	Horiz
35	637.321M	34.8	+20.3 +4.7	+6.2 +0.0	+0.3	-27.3	+0.0	39.0	46.0 x	-7.0	Vert
36	176.280M	46.8	+9.1 +2.3	+6.1 +0.0	+0.2	-28.0	+0.0	36.5	43.5 z	-7.0	Vert
37	67.800M	47.4	+6.0 +1.4	+6.1 +0.0	+0.1	-28.1	+0.0	32.9	40.0 y	-7.1	Vert
38	81.360M	45.5	+7.7 +1.5	+6.1 +0.0	+0.1	-28.1	+0.0	32.8	40.0 x	-7.2	Vert
39	94.920M	47.0	+9.4 +1.7	+6.1 +0.0	+0.1	-28.0	+0.0	36.3	43.5 z	-7.2	Vert
40	257.633M	44.8	+12.7 +2.8	+6.1 +0.0	+0.2	-27.9	+0.0	38.7	46.0 x	-7.3	Horiz
41	94.920M	46.9	+9.4 +1.7	+6.1 +0.0	+0.1	-28.0	+0.0	36.2	43.5 y	-7.3	Vert
42	67.799M	47.2	+6.0 +1.4	+6.1 +0.0	+0.1	-28.1	+0.0	32.7	40.0 z	-7.3	Vert
43	230.520M QP	46.3	+11.2 +2.7	+6.1 +0.0	+0.2	-27.9	+0.0	38.6	46.0 x	-7.4	Horiz
44	94.922M	46.8	+9.4 +1.7	+6.1 +0.0	+0.1	-28.0	+0.0	36.1	43.5 z	-7.4	Horiz
45	81.360M	45.3	+7.7 +1.5	+6.1 +0.0	+0.1	-28.1	+0.0	32.6	40.0 y	-7.4	Vert
46	176.280M	46.3	+9.1 +2.3	+6.1 +0.0	+0.2	-28.0	+0.0	36.0	43.5 x	-7.5	Vert
47	176.281M	46.3	+9.1 +2.3	+6.1 +0.0	+0.2	-28.0	+0.0	36.0	43.5 z	-7.5	Horiz
48	542.406M	36.2	+18.8 +4.4	+6.2 +0.0	+0.3	-27.6	+0.0	38.3	46.0 z	-7.7	Horiz
49	542.383M	36.1	+18.8 +4.4	+6.2 +0.0	+0.3	-27.6	+0.0	38.2	46.0 z	-7.8	Vert
50	257.650M	44.1	+12.7 +2.8	+6.1 +0.0	+0.2	-27.9	+0.0	38.0	46.0 x	-8.0	Vert

51	664.441M	33.5	+20.5 +4.8	+6.2 +0.0	+0.3	-27.3	+0.0	38.0	46.0 z	-8.0	Horiz
52	555.954M	35.6	+19.1 +4.4	+6.2 +0.0	+0.3	-27.6	+0.0	38.0	46.0 z	-8.0	Vert
53	40.680M QP	39.4	+13.4 +1.1	+6.1 +0.0	+0.1	-28.1	+0.0	32.0	40.0 z-axis	-8.0	Horiz
^	40.680M	44.6	+13.4 +1.1	+6.1 +0.0	+0.1	-28.1	+0.0	37.2	40.0 x-axis	-2.8	Horiz
^	40.680M	44.5	+13.4 +1.1	+6.1 +0.0	+0.1	-28.1	+0.0	37.1	40.0 y-axis	-2.9	Horiz
^	40.680M	40.2	+13.4 +1.1	+6.1 +0.0	+0.1	-28.1	+0.0	32.8	40.0 z-axis	-7.2	Horiz
57	515.282M	36.4	+18.3 +4.2	+6.2 +0.0	+0.3	-27.7	+0.0	37.7	46.0 x	-8.3	Horiz
58	67.801M	46.2	+6.0 +1.4	+6.1 +0.0	+0.1	-28.1	+0.0	31.7	40.0 z	-8.3	Horiz
59	542.396M	35.6	+18.8 +4.4	+6.2 +0.0	+0.3	-27.6	+0.0	37.7	46.0 y	-8.3	Horiz
60	189.840M	45.6	+8.8 +2.4	+6.1 +0.0	+0.2	-28.0	+0.0	35.1	43.5 z	-8.4	Vert
61	189.841M	45.6	+8.8 +2.4	+6.1 +0.0	+0.2	-28.0	+0.0	35.1	43.5 x	-8.4	Vert
62	555.960M	35.2	+19.1 +4.4	+6.2 +0.0	+0.3	-27.6	+0.0	37.6	46.0 y	-8.4	Vert
63	176.280M	45.3	+9.1 +2.3	+6.1 +0.0	+0.2	-28.0	+0.0	35.0	43.5 x	-8.5	Horiz
64	244.072M	43.9	+12.2 +2.8	+6.1 +0.0	+0.2	-27.9	+0.0	37.3	46.0 z	-8.7	Horiz
65	338.999M	40.9	+14.5 +3.3	+6.2 +0.0	+0.2	-27.9	+0.0	37.2	46.0 z	-8.8	Horiz
66	515.276M	35.8	+18.3 +4.2	+6.2 +0.0	+0.3	-27.7	+0.0	37.1	46.0 z	-8.9	Horiz
67	244.082M	43.7	+12.2 +2.8	+6.1 +0.0	+0.2	-27.9	+0.0	37.1	46.0 z	-8.9	Vert
68	230.520M	44.8	+11.2 +2.7	+6.1 +0.0	+0.2	-27.9	+0.0	37.1	46.0 y	-8.9	Vert
69	352.552M	40.2	+14.9 +3.4	+6.2 +0.0	+0.2	-27.9	+0.0	37.0	46.0 z	-9.0	Vert
70	189.841M	45.0	+8.8 +2.4	+6.1 +0.0	+0.2	-28.0	+0.0	34.5	43.5 y	-9.0	Vert
71	81.360M	43.6	+7.7 +1.5	+6.1 +0.0	+0.1	-28.1	+0.0	30.9	40.0 z	-9.1	Horiz
72	637.321M	32.6	+20.3 +4.7	+6.2 +0.0	+0.3	-27.3	+0.0	36.8	46.0 y	-9.2	Vert
73	176.280M	44.5	+9.1 +2.3	+6.1 +0.0	+0.2	-28.0	+0.0	34.2	43.5 y	-9.3	Horiz
74	352.564M	39.9	+14.9 +3.4	+6.2 +0.0	+0.2	-27.9	+0.0	36.7	46.0 y	-9.3	Horiz
75	108.480M	43.5	+10.6 +1.8	+6.1 +0.0	+0.1	-28.0	+0.0	34.1	43.5 y	-9.4	Vert
76	94.920M	44.8	+9.4 +1.7	+6.1 +0.0	+0.1	-28.0	+0.0	34.1	43.5 y	-9.4	Horiz

77	232.400M	43.9	+11.4 +2.7	+6.1 +0.0	+0.2	-27.9	+0.0	36.4	46.0 y	-9.6	Vert
78	366.123M	39.1	+15.3 +3.5	+6.2 +0.0	+0.2	-27.9	+0.0	36.4	46.0 y	-9.6	Horiz
79	257.651M	42.5	+12.7 +2.8	+6.1 +0.0	+0.2	-27.9	+0.0	36.4	46.0 y	-9.6	Horiz
80	515.301M	35.0	+18.3 +4.2	+6.2 +0.0	+0.3	-27.7	+0.0	36.3	46.0 y	-9.7	Horiz
81	94.920M	44.5	+9.4 +1.7	+6.1 +0.0	+0.1	-28.0	+0.0	33.8	43.5 x	-9.7	Horiz
82	528.841M QP	34.4	+18.6 +4.3	+6.2 +0.0	+0.3	-27.6	+0.0	36.2	46.0 z	-9.8	Vert
^	528.841M	39.1	+18.6 +4.3	+6.2 +0.0	+0.3	-27.6	+0.0	40.9	46.0 z	-5.1	Vert
^	528.842M	36.7	+18.6 +4.3	+6.2 +0.0	+0.3	-27.6	+0.0	38.5	46.0 y	-7.5	Vert
^	528.840M	35.6	+18.6 +4.3	+6.2 +0.0	+0.3	-27.6	+0.0	37.4	46.0 x	-8.6	Vert
86	542.404M	34.0	+18.8 +4.4	+6.2 +0.0	+0.3	-27.6	+0.0	36.1	46.0 x	-9.9	Horiz
87	610.198M	32.6	+20.0 +4.5	+6.2 +0.0	+0.3	-27.5	+0.0	36.1	46.0 x	-9.9	Vert
88	122.040M	42.1	+11.4 +1.9	+6.1 +0.0	+0.1	-28.0	+0.0	33.6	43.5 y	-9.9	Vert
89	528.841M QP	34.3	+18.6 +4.3	+6.2 +0.0	+0.3	-27.6	+0.0	36.1	46.0 y	-9.9	Horiz
^	528.841M	37.3	+18.6 +4.3	+6.2 +0.0	+0.3	-27.6	+0.0	39.1	46.0 y	-6.9	Horiz
^	528.831M	36.2	+18.6 +4.3	+6.2 +0.0	+0.3	-27.6	+0.0	38.0	46.0 z	-8.0	Horiz
^	528.842M	35.4	+18.6 +4.3	+6.2 +0.0	+0.3	-27.6	+0.0	37.2	46.0 x	-8.8	Horiz
93	366.129M	38.8	+15.3 +3.5	+6.2 +0.0	+0.2	-27.9	+0.0	36.1	46.0 z	-9.9	Vert
94	501.715M	35.0	+18.0 +4.1	+6.2 +0.0	+0.3	-27.7	+0.0	35.9	46.0 z	-10.1	Vert
95	108.481M	42.7	+10.6 +1.8	+6.1 +0.0	+0.1	-28.0	+0.0	33.3	43.5 z	-10.2	Vert
96	664.414M	31.3	+20.5 +4.8	+6.2 +0.0	+0.3	-27.3	+0.0	35.8	46.0 y	-10.2	Horiz
97	352.554M	39.0	+14.9 +3.4	+6.2 +0.0	+0.2	-27.9	+0.0	35.8	46.0 y	-10.2	Vert
98	488.138M	35.0	+17.8 +4.1	+6.2 +0.0	+0.3	-27.7	+0.0	35.7	46.0 z	-10.3	Vert
99	230.518M	43.4	+11.2 +2.7	+6.1 +0.0	+0.2	-27.9	+0.0	35.7	46.0 z	-10.3	Vert
100	501.719M	34.7	+18.0 +4.1	+6.2 +0.0	+0.3	-27.7	+0.0	35.6	46.0 y	-10.4	Horiz
101	610.209M	32.1	+20.0 +4.5	+6.2 +0.0	+0.3	-27.5	+0.0	35.6	46.0 x	-10.4	Horiz
102	257.634M	41.6	+12.7 +2.8	+6.1 +0.0	+0.2	-27.9	+0.0	35.5	46.0 z	-10.5	Horiz

103	637.330M	31.3	+20.3 +4.7	+6.2 +0.0	+0.3	-27.3	+0.0	35.5	46.0 y	-10.5	Horiz
104	230.520M QP	43.2	+11.2 +2.7	+6.1 +0.0	+0.2	-27.9	+0.0	35.5	46.0 y	-10.5	Horiz
^	230.520M	50.4	+11.2 +2.7	+6.1 +0.0	+0.2	-27.9	+0.0	42.7	46.0 x	-3.3	Horiz
^	230.520M	47.0	+11.2 +2.7	+6.1 +0.0	+0.2	-27.9	+0.0	39.3	46.0 y	-6.7	Horiz
^	230.520M	46.5	+11.2 +2.7	+6.1 +0.0	+0.2	-27.9	+0.0	38.8	46.0 z	-7.2	Horiz
108	542.404M	33.3	+18.8 +4.4	+6.2 +0.0	+0.3	-27.6	+0.0	35.4	46.0 x	-10.6	Vert
109	637.321M	31.2	+20.3 +4.7	+6.2 +0.0	+0.3	-27.3	+0.0	35.4	46.0 x	-10.6	Horiz
110	555.961M	33.0	+19.1 +4.4	+6.2 +0.0	+0.3	-27.6	+0.0	35.4	46.0 x	-10.6	Vert
111	108.480M	42.1	+10.6 +1.8	+6.1 +0.0	+0.1	-28.0	+0.0	32.7	43.5 x	-10.8	Vert
112	122.040M	41.2	+11.4 +1.9	+6.1 +0.0	+0.1	-28.0	+0.0	32.7	43.5 y	-10.8	Horiz
113	515.283M	33.8	+18.3 +4.2	+6.2 +0.0	+0.3	-27.7	+0.0	35.1	46.0 x	-10.9	Vert
114	664.447M	30.5	+20.5 +4.8	+6.2 +0.0	+0.3	-27.3	+0.0	35.0	46.0 z	-11.0	Vert
115	352.560M	38.1	+14.9 +3.4	+6.2 +0.0	+0.2	-27.9	+0.0	34.9	46.0 z	-11.1	Horiz
116	542.392M	32.8	+18.8 +4.4	+6.2 +0.0	+0.3	-27.6	+0.0	34.9	46.0 y	-11.1	Vert
117	488.156M	34.1	+17.8 +4.1	+6.2 +0.0	+0.3	-27.7	+0.0	34.8	46.0 x	-11.2	Vert
118	501.728M	33.9	+18.0 +4.1	+6.2 +0.0	+0.3	-27.7	+0.0	34.8	46.0 x	-11.2	Vert
119	488.163M	34.1	+17.8 +4.1	+6.2 +0.0	+0.3	-27.7	+0.0	34.8	46.0 x	-11.2	Horiz
120	637.328M	30.6	+20.3 +4.7	+6.2 +0.0	+0.3	-27.3	+0.0	34.8	46.0 z	-11.2	Horiz
121	488.166M	34.0	+17.8 +4.1	+6.2 +0.0	+0.3	-27.7	+0.0	34.7	46.0 y	-11.3	Horiz
122	664.434M	30.2	+20.5 +4.8	+6.2 +0.0	+0.3	-27.3	+0.0	34.7	46.0 x	-11.3	Horiz
123	501.719M	33.8	+18.0 +4.1	+6.2 +0.0	+0.3	-27.7	+0.0	34.7	46.0 z	-11.3	Horiz
124	338.986M	38.1	+14.5 +3.3	+6.2 +0.0	+0.2	-27.9	+0.0	34.4	46.0 y	-11.6	Horiz
125	366.102M	37.1	+15.3 +3.5	+6.2 +0.0	+0.2	-27.9	+0.0	34.4	46.0 x	-11.6	Horiz
126	610.203M	30.9	+20.0 +4.5	+6.2 +0.0	+0.3	-27.5	+0.0	34.4	46.0 z	-11.6	Vert
127	352.576M	37.5	+14.9 +3.4	+6.2 +0.0	+0.2	-27.9	+0.0	34.3	46.0 x	-11.7	Vert
128	610.199M	30.8	+20.0 +4.5	+6.2 +0.0	+0.3	-27.5	+0.0	34.3	46.0 y	-11.7	Horiz

129	406.803M	35.6	+16.3 +3.6	+6.2 +0.0	+0.2	-27.9	+0.0	34.0	46.0 x	-12.0	Vert
130	406.799M	35.6	+16.3 +3.6	+6.2 +0.0	+0.2	-27.9	+0.0	34.0	46.0 y	-12.0	Vert
131	311.873M	38.6	+13.6 +3.2	+6.2 +0.0	+0.2	-27.9	+0.0	33.9	46.0 z	-12.1	Horiz
132	352.567M	37.1	+14.9 +3.4	+6.2 +0.0	+0.2	-27.9	+0.0	33.9	46.0 x	-12.1	Horiz
133	257.641M	39.9	+12.7 +2.8	+6.1 +0.0	+0.2	-27.9	+0.0	33.8	46.0 y	-12.2	Vert
134	610.201M	30.3	+20.0 +4.5	+6.2 +0.0	+0.3	-27.5	+0.0	33.8	46.0 z	-12.2	Horiz
135	488.160M	33.1	+17.8 +4.1	+6.2 +0.0	+0.3	-27.7	+0.0	33.8	46.0 z	-12.2	Horiz
136	339.000M	37.4	+14.5 +3.3	+6.2 +0.0	+0.2	-27.9	+0.0	33.7	46.0 x	-12.3	Horiz
137	311.882M	38.4	+13.6 +3.2	+6.2 +0.0	+0.2	-27.9	+0.0	33.7	46.0 x	-12.3	Horiz
138	299.270M	38.8	+13.2 +3.1	+6.1 +0.0	+0.2	-27.9	+0.0	33.5	46.0 y	-12.5	Horiz
139	339.005M	37.1	+14.5 +3.3	+6.2 +0.0	+0.2	-27.9	+0.0	33.4	46.0 z	-12.6	Vert
140	501.730M	32.4	+18.0 +4.1	+6.2 +0.0	+0.3	-27.7	+0.0	33.3	46.0 x	-12.7	Horiz
141	257.639M	39.3	+12.7 +2.8	+6.1 +0.0	+0.2	-27.9	+0.0	33.2	46.0 z	-12.8	Vert
142	501.716M	32.3	+18.0 +4.1	+6.2 +0.0	+0.3	-27.7	+0.0	33.2	46.0 y	-12.8	Vert
143	664.442M	28.5	+20.5 +4.8	+6.2 +0.0	+0.3	-27.3	+0.0	33.0	46.0 y	-13.0	Vert
144	488.162M	32.3	+17.8 +4.1	+6.2 +0.0	+0.3	-27.7	+0.0	33.0	46.0 y	-13.0	Vert
145	244.080M	39.5	+12.2 +2.8	+6.1 +0.0	+0.2	-27.9	+0.0	32.9	46.0 y	-13.1	Horiz
146	515.274M	31.6	+18.3 +4.2	+6.2 +0.0	+0.3	-27.7	+0.0	32.9	46.0 y	-13.1	Vert
147	298.770M	38.2	+13.2 +3.1	+6.1 +0.0	+0.2	-27.9	+0.0	32.9	46.0 y	-13.1	Vert
148	610.192M	29.3	+20.0 +4.5	+6.2 +0.0	+0.3	-27.5	+0.0	32.8	46.0 y	-13.2	Vert
149	108.480M	39.6	+10.6 +1.8	+6.1 +0.0	+0.1	-28.0	+0.0	30.2	43.5 y	-13.3	Horiz
150	406.785M	34.2	+16.3 +3.6	+6.2 +0.0	+0.2	-27.9	+0.0	32.6	46.0 z	-13.4	Vert
151	366.115M	35.1	+15.3 +3.5	+6.2 +0.0	+0.2	-27.9	+0.0	32.4	46.0 y	-13.6	Vert
152	108.480M	39.3	+10.6 +1.8	+6.1 +0.0	+0.1	-28.0	+0.0	29.9	43.5 x	-13.6	Horiz
153	311.887M	36.9	+13.6 +3.2	+6.2 +0.0	+0.2	-27.9	+0.0	32.2	46.0 y	-13.8	Vert
154	258.030M	38.0	+12.7 +2.9	+6.1 +0.0	+0.2	-27.9	+0.0	32.0	46.0 y	-14.0	Vert

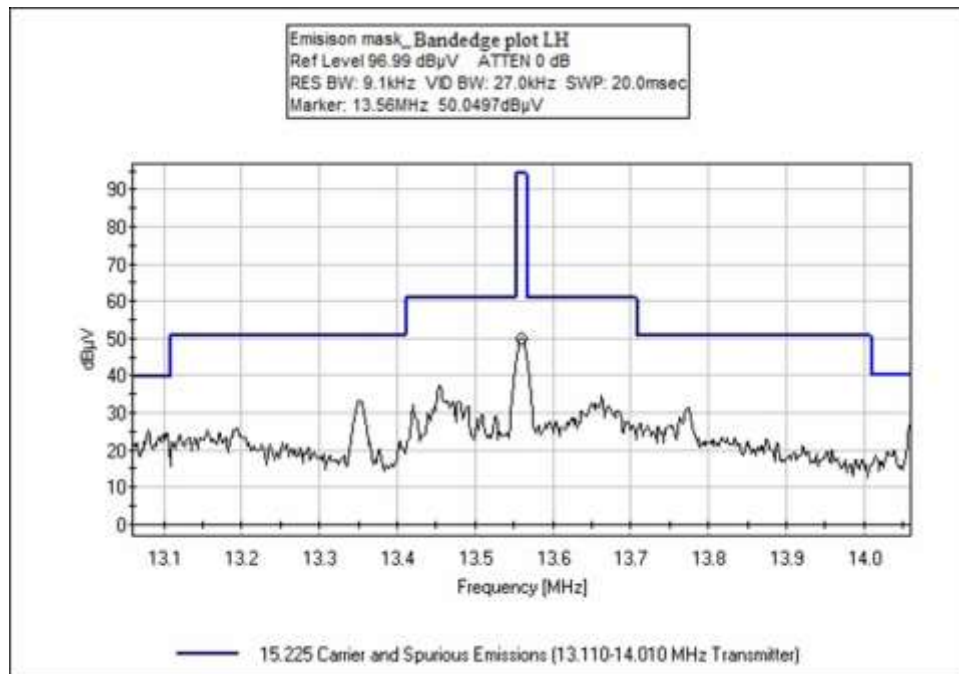
155	284.767M	37.6	+13.0 +3.0	+6.1 +0.0	+0.2	-27.9	+0.0	32.0	46.0	-14.0	Vert
156	311.879M	36.2	+13.6 +3.2	+6.2 +0.0	+0.2	-27.9	+0.0	31.5	46.0	-14.5	Horiz
157	366.121M	33.9	+15.3 +3.5	+6.2 +0.0	+0.2	-27.9	+0.0	31.2	46.0	-14.8	Vert
158	284.756M	36.3	+13.0 +3.0	+6.1 +0.0	+0.2	-27.9	+0.0	30.7	46.0	-15.3	Horiz
159	311.880M	35.2	+13.6 +3.2	+6.2 +0.0	+0.2	-27.9	+0.0	30.5	46.0	-15.5	Vert
160	239.999M	36.9	+11.9 +2.7	+6.1 +0.0	+0.2	-27.9	+0.0	29.9	46.0	-16.1	Vert
161	108.480M	36.6	+10.6 +1.8	+6.1 +0.0	+0.1	-28.0	+0.0	27.2	43.5	-16.3	Horiz

Band Edge

Band Edge Summary

Frequency (MHz)	Modulation	Ant. Type	Field Strength (dBuV/m @30m)	Limit (dBuV/m @30m)	Results
13.110	OOK	Loop	9.7	≤29.5	Pass
14.010	OOK	Loop	7.5	≤29.5	Pass

Band Edge Plots



Test Setup / Conditions / Data

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA • 714 993 6112
 Customer: **Magtek Incorporated**
 Specification: **15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**
 Work Order #: **105871** Date: 10/8/2021
 Test Type: **Radiated Scan** Time: 16:11:35
 Tested By: E. Wong Sequence#: 2
 Software: EMITest 5.03.20

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

The equipment under test (EUT) is placed on Styrofoam block and connected to a support laptops DB-9 serial port and USB port.
 The EUT is set in constant transmit mode with a card placed in the field. The fundamental signal is modulated.
 The manufacturer declares the highest EUT frequency generated or used is 27.12MHz

Frequency range of data sheet is 9kHz-30MHz
 RBW=9 kHz
 VBW= 27kHz

Test environment conditions:
 Temperature: 23°C
 Relative Humidity: 57%
 Pressure: 99kPa

Emission profile of the EUT rotated along three orthogonal axes was investigated.
 Recorded data represent worse case emission.

Site A
 Test method ANSI C63.10-2013

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP05198	Cable-Amplitude +15C to +45C (dB)	8268	12/21/2020	12/21/2022
T2	AN00314	Loop Antenna	6502	4/13/2020	4/13/2022
T3	AN02869	Spectrum Analyzer	E4440A	8/16/2021	8/16/2022

Measurement Data:

Reading listed by margin.

Test Distance: 10 Meters

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	13.110M	20.0	+0.6	+8.2	+0.0		-19.1	9.7	29.5	-19.8	Paral
2	14.010M	18.0	+0.6	+8.0	+0.0		-19.1	7.5	29.5	-22.0	Paral

Test Setup Photo(s)





X Axis



Y Axis



Z Axis

15.207 AC Conducted Emissions

Test Setup / Conditions / Data

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA • 714 993 6112
 Customer: **Magtek Incorporated**
 Specification: **15.207 AC Mains - Average**
 Work Order #: **105871** Date: 10/11/2021
 Test Type: **Conducted Emissions** Time: 11:34:55
 Tested By: E. Wong Sequence#: 10
 Software: EMITest 5.03.20 120/60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

The equipment under test (EUT) is placed on Styrofoam block and connected to a support laptops DB-9 serial port and USB port.

The EUT is set in constant transmit mode with a card placed in the field. The fundamental signal is modulated. The manufacturer declares the highest EUT frequency generated or used is 27.12MHz

Frequency range of measurement = 150kHz- 30MHz.
150 kHz-30 MHz;RBW=9 kHz,VBW=30kHz

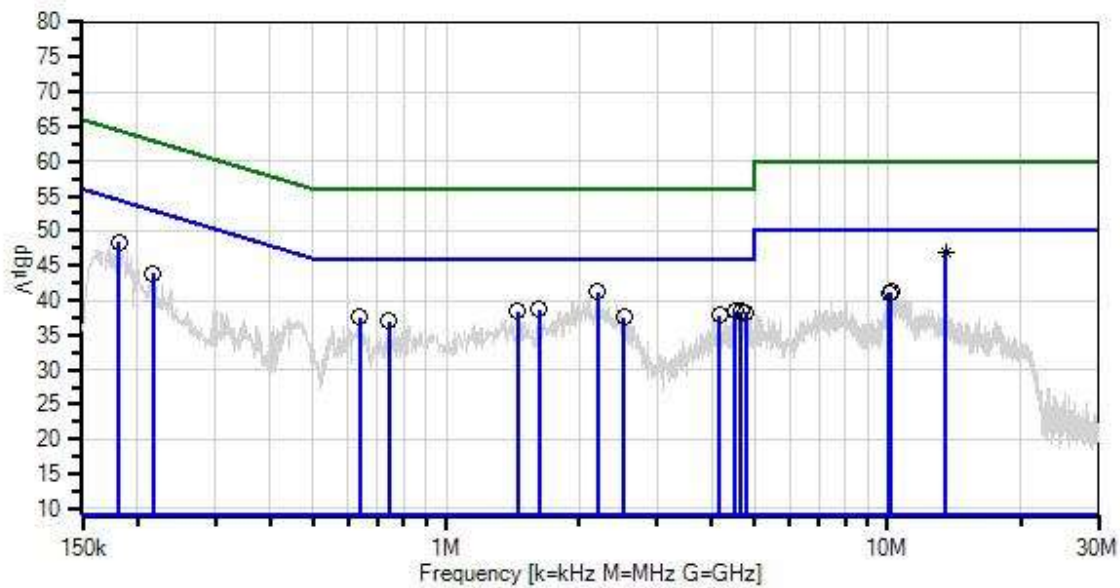
Test environment conditions:
Temperature: 21.5°C
Relative Humidity: 52%
Pressure: 98kPa

Measurement performed at the AC main of power supply of the support laptop

Site A

Test method ANSI C63.10-2013

Magtek Incorporated W/O#: 105871 Sequence#: 10 Date: 10/11/2021
15.207 AC Mains - Average Test Lead: 120/60Hz L1-Line



— Sweep Data
 × QP Readings
 Software Version: 5.03.20

— Readings
 * Average Readings
 — 1 - 15.207 AC Mains - Average

○ Peak Readings
 ▼ Ambient
 — 2 - 15.207 AC Mains - Quasi-peak

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02869	Spectrum Analyzer	E4440A	8/16/2021	8/16/2022
T2	AN02610	High Pass Filter	HE9615-150K-50-720B	9/8/2021	9/8/2023
T3	ANP07338	Cable	2249-Y-240	12/24/2019	12/24/2021
T4	ANP07545	Attenuator	SA18N10W-06	1/4/2021	1/4/2023
T5	AN00969A	50uH LISN-Line (dB)	3816/2NM	7/27/2020	7/27/2022
	AN00969A	50uH LISN-Return (dB)	3816/2NM	7/27/2020	7/27/2022

Measurement Data:

Reading listed by margin.

Test Lead: L1-Line

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dB μ V	dB	dB	dB	dB	Table	dB μ V	dB μ V	dB	Ant
1	13.559M	40.2	+0.0	+0.2	+0.3	+5.8	+0.0	46.8	50.0	-3.2	L1-Li
Ave			+0.3								
^	13.562M	41.3	+0.0	+0.2	+0.3	+5.8	+0.0	47.9	50.0	-2.1	L1-Li
			+0.3								
3	2.204M	35.2	+0.0	+0.1	+0.1	+5.7	+0.0	41.2	46.0	-4.8	L1-Li
			+0.1								
4	181.269k	42.4	+0.0	+0.3	+0.0	+5.7	+0.0	48.4	54.4	-6.0	L1-Li
			+0.0								
5	1.626M	32.6	+0.0	+0.2	+0.1	+5.7	+0.0	38.7	46.0	-7.3	L1-Li
			+0.1								
6	4.518M	32.3	+0.0	+0.1	+0.2	+5.7	+0.0	38.4	46.0	-7.6	L1-Li
			+0.1								
7	4.658M	32.3	+0.0	+0.1	+0.2	+5.7	+0.0	38.4	46.0	-7.6	L1-Li
			+0.1								
8	1.451M	32.3	+0.0	+0.2	+0.1	+5.7	+0.0	38.4	46.0	-7.6	L1-Li
			+0.1								
9	4.764M	32.2	+0.0	+0.1	+0.2	+5.7	+0.0	38.3	46.0	-7.7	L1-Li
			+0.1								
10	4.156M	31.7	+0.0	+0.1	+0.2	+5.7	+0.0	37.8	46.0	-8.2	L1-Li
			+0.1								
11	637.955k	31.3	+0.0	+0.3	+0.1	+5.8	+0.0	37.6	46.0	-8.4	L1-Li
			+0.1								
12	2.532M	31.5	+0.0	+0.1	+0.1	+5.7	+0.0	37.5	46.0	-8.5	L1-Li
			+0.1								
13	10.202M	34.8	+0.0	+0.1	+0.3	+5.7	+0.0	41.2	50.0	-8.8	L1-Li
			+0.3								
14	10.085M	34.7	+0.0	+0.1	+0.3	+5.7	+0.0	41.1	50.0	-8.9	L1-Li
			+0.3								
15	744.127k	30.8	+0.0	+0.3	+0.1	+5.7	+0.0	37.0	46.0	-9.0	L1-Li
			+0.1								
16	216.902k	38.0	+0.0	+0.2	+0.0	+5.7	+0.0	43.9	52.9	-9.0	L1-Li
			+0.0								



Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA • 714 993 6112
 Customer: **Magtek Incorporated**
 Specification: **15.207 AC Mains - Average**
 Work Order #: **105871** Date: 10/11/2021
 Test Type: **Conducted Emissions** Time: 11:41:14
 Tested By: E. Wong Sequence#: 11
 Software: EMITest 5.03.20 120/60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

The equipment under test (EUT) is placed on Styrofoam block and connected to a support laptops DB-9 serial port and USB port.

The EUT is set in constant transmit mode with a card placed in the field. The fundamental signal is modulated. The manufacturer declares the highest EUT frequency generated or used is 27.12MHz

Frequency range of measurement = 150kHz- 30MHz.
 150 kHz-30 MHz;RBW=9 kHz,VBW=30kHz

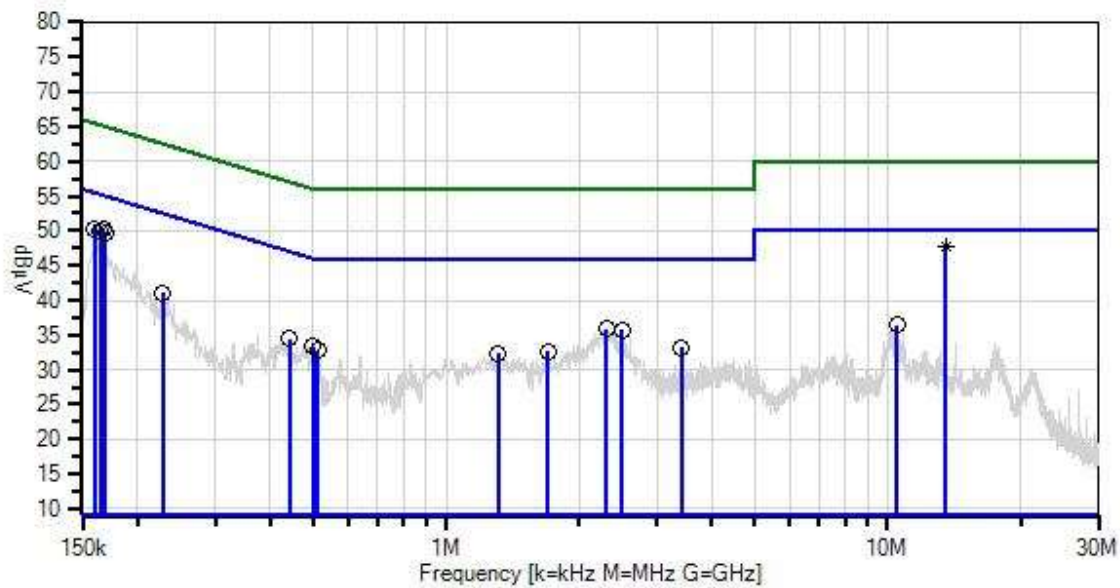
Test environment conditions:
 Temperature: 21.5°C
 Relative Humidity: 52%
 Pressure: 98kPa

Measurement performed at the AC main of power supply of the support laptop

Site A

Test method ANSI C63.10-2013

Magtek Incorporated W/O#: 105871 Sequence#: 11 Date: 10/11/2021
15.207 AC Mains - Average Test Lead: 120/60Hz L2-Neutral



— Sweep Data
 × QP Readings
 Software Version: 5.03.20

— Readings
 * Average Readings
 — 1 - 15.207 AC Mains - Average

○ Peak Readings
 ▼ Ambient
 — 2 - 15.207 AC Mains - Quasi-peak

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02869	Spectrum Analyzer	E4440A	8/16/2021	8/16/2022
T1	AN02610	High Pass Filter	HE9615-150K-50-720B	9/8/2021	9/8/2023
T2	ANP07338	Cable	2249-Y-240	12/24/2019	12/24/2021
T3	ANP07545	Attenuator	SA18N10W-06	1/4/2021	1/4/2023
	AN00969A	50uH LISN-Line (dB)	3816/2NM	7/27/2020	7/27/2022
T4	AN00969A	50uH LISN-Return (dB)	3816/2NM	7/27/2020	7/27/2022

Measurement Data:

Reading listed by margin.

Test Lead: L2-Neutral

#	Freq MHz	Rdng dB μ V	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dB μ V	Spec dB μ V	Margin dB	Polar Ant
1	13.560M	41.0	+0.2	+0.3	+5.8	+0.3	+0.0	47.6	50.0	-2.4	L2-Ne
Ave											
^	13.562M	41.6	+0.2	+0.3	+5.8	+0.3	+0.0	48.2	50.0	-1.8	L2-Ne
3	167.451k	44.3	+0.3	+0.0	+5.7	+0.0	+0.0	50.3	55.1	-4.8	L2-Ne
4	164.543k	44.0	+0.4	+0.0	+5.7	+0.0	+0.0	50.1	55.2	-5.1	L2-Ne
5	159.452k	44.1	+0.5	+0.0	+5.7	+0.0	+0.0	50.3	55.5	-5.2	L2-Ne
6	168.906k	43.7	+0.3	+0.0	+5.7	+0.0	+0.0	49.7	55.0	-5.3	L2-Ne
7	2.310M	29.9	+0.1	+0.1	+5.7	+0.1	+0.0	35.9	46.0	-10.1	L2-Ne
8	2.502M	29.8	+0.1	+0.1	+5.7	+0.1	+0.0	35.8	46.0	-10.2	L2-Ne
9	227.810k	35.1	+0.2	+0.0	+5.7	+0.0	+0.0	41.0	52.5	-11.5	L2-Ne
10	442.335k	28.6	+0.2	+0.0	+5.7	+0.0	+0.0	34.5	47.0	-12.5	L2-Ne
11	498.330k	27.4	+0.3	+0.0	+5.7	+0.0	+0.0	33.4	46.0	-12.6	L2-Ne
12	3.412M	27.2	+0.1	+0.1	+5.7	+0.1	+0.0	33.2	46.0	-12.8	L2-Ne
13	511.420k	26.8	+0.3	+0.0	+5.7	+0.0	+0.0	32.8	46.0	-13.2	L2-Ne
14	1.698M	26.6	+0.2	+0.1	+5.7	+0.0	+0.0	32.6	46.0	-13.4	L2-Ne
15	10.499M	30.2	+0.1	+0.3	+5.7	+0.2	+0.0	36.5	50.0	-13.5	L2-Ne
16	1.315M	26.3	+0.2	+0.1	+5.7	+0.0	+0.0	32.3	46.0	-13.7	L2-Ne

Test Setup Photo(s)



Appendix A: Manufacturer Declaration

The following model has been tested by CKC Laboratories: **DynaProx BCR**

The manufacturer declares the tested model is worst case and the only difference between the two models is the barcode reader (BCR).

The manufacturer declares that the following additional models are identical electrically or any differences between them do not affect their EMC characteristics, and therefore meets the level of testing equivalent to the tested model.

DynaProx

SUPPLEMENTAL INFORMATION

Measurement Uncertainty

Uncertainty Value	Parameter
4.73 dB	Radiated Emissions
3.34 dB	Mains Conducted Emissions
3.30 dB	Disturbance Power

Uncertainties reported are worst case for all CKC Laboratories' sites and represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of $k=2$. Compliance is deemed to occur provided measurements are below the specified limits.

Emissions Test Details

TESTING PARAMETERS

Unless otherwise indicated, the following configuration parameters are used for equipment setup: The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. Cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the setup photographs. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables.

The emissions data was taken with a spectrum analyzer or receiver. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the table below. The corrected data was then compared to the applicable emission limits. Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in $\text{dB}\mu\text{V}/\text{m}$, the spectrum analyzer reading in $\text{dB}\mu\text{V}$ was corrected by using the following formula. This reading was then compared to the applicable specification limit. Individual measurements were compared with the displayed limit value in the margin column. The margin was calculated based on subtracting the limit value from the corrected measurement value; a positive margin represents a measurement exceeding the limit, while a negative margin represents a measurement less than the limit.

SAMPLE CALCULATIONS		
	Meter reading	($\text{dB}\mu\text{V}$)
+	Antenna Factor	(dB/m)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	($\text{dB}\mu\text{V}/\text{m}$)

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed were used to collect the emissions data. A spectrum analyzer or receiver was used for all measurements. Unless otherwise specified, the following table shows the measuring equipment bandwidth settings that were used in designated frequency bands. For testing emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used.

MEASURING EQUIPMENT BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	9 kHz	150 kHz	200 Hz
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1000 MHz	>1 GHz	1 MHz

SPECTRUM ANALYZER/RECEIVER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the emissions tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "positive peak" detector mode. Whenever a "quasi-peak" or "average" reading was recorded, the measurement was annotated with a "QP" or an "Ave" on the appropriate rows of the data sheets. In cases where quasi-peak or average limits were employed and data exists for multiple measurement types for the same frequency then the peak measurement was retained in the report for reference, however the numbering for the affected row was removed and an arrow or caret ("^") was placed in the far left-hand column indicating that the row above takes precedence for comparison to the limit. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data.

Peak

In this mode, the spectrum analyzer or receiver recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature called "peak hold," the measurement device had the ability to measure intermittent or low duty cycle transient emission peak levels. In this mode the measuring device made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

Quasi-Peak

Quasi-peak measurements were taken using the quasi-peak detector when the true peak values exceeded or were within 2 dB of a quasi-peak specification limit. Additional QP measurements may have been taken at the discretion of the operator.

Average

Average measurements were taken using the average detector when the true peak values exceeded or were within 2 dB of an average specification limit. Additional average measurements may have been taken at the discretion of the operator. If the specification or test procedure requires trace averaging, then the averaging was performed using 100 samples or as required by the specification. All other average measurements are performed using video bandwidth averaging. To make these measurements, the test engineer reduces the video bandwidth on the measuring device until the modulation of the signal is filtered out. At this point, the measuring device is set into the linear mode and the scan time is reduced.