TEST REPORT

ACCREDITED

Certification # 1367-01

Laboratory ID
PRODUCT SAFETY ENGINEERING, INC.
12955 Bellamy Brothers Boulevard
Dade City, Florida 33525 USA
PH (352) 588-2209 FX (352) 588-2544

Submitter ID
The Genie Company
22790 Lake Park Blvd.

Alliance, OH 44601-3498

Report Issue Date: 22 Nov 2004
Sample S/N: None

Test Report Number: 04F458B
Model Designation: KP360MO / KP360MG

Sample Receipt Date: September 28, 2004
Sample Test Date: see data sheets

Product Description: Garage Door Transmitter
Marketing Approval _____

Description of non-standard test method or test practice: ***None***
Estimated Measurement Uncertainty: ***Not Applicable***

Special limitations of use: ***None***

Traceability: ***reference standards of measurement have been calibrated by a competent body using standards traceable to the NIST.***

According to testing performed at Product Safety Engineering, Inc., the above-mentioned unit is in compliance with the electromagnetic compatibility requirements defined in regulations indicated on page (3) of the test report. The test results contained herein relate only to the model(s) identified above. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical characteristics.

As the responsible EMC Project Engineer, I hereby declare that the equipment tested as specified above conforms to the requirements indicated on page (3) of the test report.

Signature _____ Name David Foerstner

Title Engineering Group Leader Date 22 Nov 2004

Reviewed by:
Approved Signatory _____ Date 22 Nov 2004

DIRECTORY - EMISSIONS

Product Safety Engineering, Inc 12955 Bellamy Brothers Blvd. Dade City, FL 33525
Tel (352) 588-2209 Fax (352) 588-2544

EMISSIONS TEST REGULATIONS :

The emissions tests were performed according to following regulations:

□ - EN 50081-1 : 1992

□ - EN 50081-2 : 1995

□ - EN 55011 : 1998 / A1:1999 — □ - Group 1 — □ - Group 2

□ - Class A — □ - Class B

□ - EN 55013 : 1990 / A12:1994 / A13:1996 / A14:1999

□ - EN 55014 : 1993 /A1:1997

□ - Household appliances and similar

□ - Portable tools

□ - Semiconductor devices

□ - EN 55022 : 1998 — □ - Class A — □ - Class B

□ -AS/NZS 3548:1995 — □ - Class A — □ - Class B

□ - ICES-003 — □ - Class A — □ - Class B

□ - CNS 13438 — □ - Class A — □ - Class B

□ - VCCI : 1999 — □ - Class A — □ - Class B

■ - FCC Part 15 — □ - Class A — □ - Class B

■ - Certification
□ - Verification
□ - Declaration of Conformity

■ - RSS-210

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Environmental conditions during testing:

	LAB	OATS
Temperature: *	_____	: _____
Relative Humidity: **	_____	: _____

* The ambient temperature during the testing was within the range of (50° - 104° F) unless indicted above.
** The humidity levels during the testing was within the range of (10% - 90%) relative humidity unless indicated above.

Power supply system : 9 Volts DC Hz Battery

Sign Explanations:

□ - not applicable
■ - applicable

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Emissions Test Conditions: CONDUCTED EMISSIONS (Interference Voltage)

The *CONDUCTED EMISSIONS (INTERFERENCE VOLTAGE)* measurements were performed at the following test location:

■ - **Test not applicable**

□ - Darby Test Site (Open Area Test Site)
□ - Darby Laboratory

Test equipment used :

	Model Number	Manufacturer	Description	Serial Number
□ -	8028-50	Solar	50 Ω LISN	829012, 829022
□ -	3825/2	Solar	50 Ω LISN	924840
□ -	EMC-30	Electro-Metrics	EMI Receiver	191
□ -	8566B	Hewlett-Packard	Spectrum Analyzer	2421A00526
□ -	85650A	Hewlett-Packard	Quasi-Peak Adapter	2043A00209
□ -	85662A	Hewlett Packard	Analyzer Display	2403A07352
□ -	8028-50	Solar	50 Ω LISN	903725, 903726
□ -	FCC-TLISN-T4	Fisher Custom Com.	Telecom ISN	20072

Emissions Test Conditions: RADIATED EMISSIONS (Magnetic Field)

The *RADIATED EMISSIONS (MAGNETIC FIELD)* measurements were performed at the following test location:

□ - Darby Test Site (Open Area Test Site)
□ -
□ -

at a test distance of :

□ - 3 meters
□ - 30 meters

■ - **Test not applicable**

Test equipment used :

	Model Number	Manufacturer	Description	Serial Number
□ -	96005	Eaton	Log Periodic Antenna	1099
□ -	BIA-25	Electro-Metrics	Biconical Antenna	4283
□ -	8566B	Hewlett-Packard	Spectrum Analyzer	2421A00526
□ -	85662A	Hewlett-Packard	Analyzer Display	2403A07352
□ -	85650A	Hewlett-Packard	Quasi-Peak Adapter	2043A00209
□ -	ALR-30M	Electro-Metrics	Loop Antenna	824
□ -	8447D	Hewlett Packard	Preamplifier	2944A06832
□ -	EMC-30	Electro-Metrics	EMI Receiver	191
□ -	ALA-130/A	Antenna Research	Loop Antenna	106

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Emissions Test Conditions: RADIATED EMISSIONS (Electric Field)

The *RADIATED EMISSIONS (ELECTRIC FIELD)* measurements, in the frequency range of 30 MHz-1000 MHz, were tested in a horizontal and vertical polarization at the following test location :

□ - Test not applicable

■ - Darby Site (Open Area Test Site)
□ - Darby Lab
□ -

at a test distance of :

■ - 3 meters
□ - 10 meters
□ - 30 meters

Test equipment used :

	Model Number	Manufacturer	Description	Serial Number
■ -	96005	Eaton	Log Periodic Antenna	1099
■ -	BIA-25	Electro-Metrics	Biconical Antenna	4283
■ -	8566B	Hewlett-Packard	Spectrum Analyzer	2421A00526
■ -	85662A	Hewlett-Packard	Analyzer Display	2403A07352
■ -	85650A	Hewlett-Packard	Quasi-Peak Adapter	2043A00209
■ -	8447D	Hewlett-Packard	Preamplifier (26dB)	2944A06832
□ -	EMC-30	Electro-Metrics	EMI Receiver	191
□ -	8568B	Hewlett Packard	Spectrum Analyzer	2407A03213
□ -	85650A	Hewlett Packard	Quasi-Peak Adapter	2043A00358
□ -	85662A	Hewlett Packard	Analyzer Display	2340A05806
□ -	LPA30	Electro-Metrics	Log Periodic	2280
□ -	BIA 30	Electro-Metrics	Biconical Antenna	3852

Emissions Test Conditions): INTERFERENCE POWER

The *INTERFERENCE POWER* measurements were performed by using the absorbing clamp on the mains and interface cables in the frequency range 30 MHz - 300 MHz at the following test location :

■ - Test not applicable

□ - Darby Lab
□ -

Test equipment used :

	Model Number	Manufacturer	Description	Serial Number
□ -	MDS-21	Rhode&Schwarz	Absorbing Clamp	8608447020
□ -	8566B	Hewlett-Packard	Spectrum Analyzer	2421A00526
□ -	85662A	Hewlett-Packard	Analyzer Display	2403A07352
□ -	85650A	Hewlett-Packard	Quasi-Peak Adapter	2043A00209
□ -	8447D	Hewlett-Packard	Amplifier (26 dB)	2944A06832
□ -	EMC-30	Electro-Metrics	EMI Receiver	191

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The *EQUIVALENT RADIATED EMISSIONS* measurements in the frequency range 1 GHz - 4 GHz were performed in a horizontal and vertical polarization at the following test location :

■ - Darby Test Site (Open Area Test Site)
□ -
□ -
□ -

at a test distance of:

□ - 1 meters
■ - 3 meters
□ - 10 meters

□ - Test not applicable

Test equipment used :

	Model Number	Manufacturer	Description	Serial Number
■ -	8566B	Hewlett-Packard	Spectrum Analyzer	2421A00526
■ -	85662A	Hewlett-Packard	Analyzer Display	2403A07352
■ -	85650A	Hewlett-Packard	Quasi-Peak Adapter	2043A00209
■ -	8449B	Hewlett-Packard	Preamplifier	3008A00320
■ -	3115	Electro-Mechanics	Double Ridge Guide Horn	3810

The *ANTENNA TERMINAL DISTURBANCE VOLTAGE* in the frequency range 30 MHz - 1,000 MHz were performed.

□ - Darby Test Site (Open Area Test Site)
□ - Laboratory
□ -
□ -

■ - Test not applicable

	Model Number	Manufacturer	Description	Serial Number
□ -	2F9-3C4-3C5	Wavecom	UHF PAL TV Modulator	185879
□ -	2F1-3C4-3C5	Wavecom	VHF PAL TV Modulator	157728
□ -	A-8000	IFR	Spectrum Analyzer	1306
□ -	8648B	Hewlett-Packard	Signal Generator	3623A01433
□ -	8648B	Hewlett-Packard	Signal Generator	3623A01477
□ -	LMV-182A	Leader	RMS Milli-Voltmeter	8010091
□ -	3202	Krhon-Hite	Active filter	5899
□-	FMT115	Leaming	FM Modulator	NONE
□ -	371	UDT	Optical power meter	06657
□ -	TSG95	Tektronix	PAL video / Audio generator	B028883
□-				

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Equipment Under Test (EUT) Test Operation Mode - Emission tests :

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

□ - Standby

□ - Test program (H - Pattern)

□ - Test program (color bar)

□ - Test program (customer specific)

■ - Practice operation

□ - Normal Operating Mode

□ -

Configuration of the device under test:

■ - See System Under Test Information in Appendix B

Rationale for EUT setup / configuration:

ANSI C63.4

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Emission Test Results:

Conducted emissions 10/150/450 kHz - 30 MHz

The requirements are ☐ - **MET** ☐ - **NOT MET**

Minimum limit margin dB at MHz
Remarks:

Radiated emissions (magnetic field) 10 kHz - 30 MHz

The requirements are ☐ - **MET** ☐ - **NOT MET**

Minimum limit margin dB at MHz
Remarks:

Radiated emissions (electric field) 30 MHz - 1000 MHz

The requirements are ■ - **MET** ☐ - **NOT MET**

Minimum limit margin **3.6** dB at **360.1** MHz
Remarks:

Interference Power at the mains and interface cables 30 MHz - 300 MHz

The requirements are ☐ - **MET** ☐ - **NOT MET**

Minimum limit margin dB at MHz
Remarks:

Radiated emissions 1 GHz - 4 GHz

The requirements are ■ - **MET** ☐ - **NOT MET**

Minimum limit margin **>20** dB at **<4** GHz
Remarks:

Antenna Terminal Disturbance Voltage 30 MHz - 1,000 MHz

The requirements are ☐ - **MET** ☐ - **NOT MET**

Minimum limit margin dB at MHz
Remarks:

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GENERAL REMARKS:

The (20) dB bandwidth is (381) kHz. This meets the requirement of being less than (0.25%) of the center frequency. Center frequency = (360) MHz. The maximum allowable bandwidth at (360) MHz is (900) kHz.

We made measurements up to the tenth harmonic.

The EUT was evaluated in (3) orthogonal orientations and the worst case data is reflected in the test report.

SUMMARY:

The requirements according to the technical regulations are

■ - met

□ - **not** met.

The device under test does

■ - fulfill the general approval requirements mentioned on page 3.

□ - **not** fulfill the general approval requirements mentioned on page 3.

Testing Start Date **September 30, 2004**

Testing End Date: **September 30, 2004**

- PRODUCT SAFETY ENGINEERING INC -

Test-setup photo(s):
Conducted emission 450/150 kHz - 30 MHz

N/A

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Test-setup photo(s):
Radiated emission 30 MHz - 2000 MHz

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APPENDIX

A

Test Equipment Calibration Information

&

Test Data Sheets

TEST EQUIPMENT CALIBRATION INFORMATION

Manufacturer	Model	Description	Serial Number	Cal Due
Hewlett Packard	8566B	Spectrum Analyzer	2421A00526	08/12/05
Hewlett Packard	85662A	Display	2403A07352	08/12/05
Hewlett Packard	85650A	Quasi-Peak Adapter	2043A00209	08/12/05
Hewlett Packard	8447D	Preamp 0.1 - 1,000 MHz	2944A06832	12/10/04
Hewlett Packard	8568B	Spectrum Analyzer	2407A03213	08/12/05
Hewlett Packard	85662A	Display	2340A05806	08/12/05
Hewlett Packard	85650A	Quasi-Peak Adapter	2043A00358	08/12/05
Hewlett Packard	8447D	Preamp 0.1 - 1,000 MHz	2944A06901	08/12/05
Hewlett Packard	8447D	Preamp 0.1 - 1,000 MHz	1937A03247	08/12/05
Hewlett Packard	8449B	Preamp 1 - 26.5 GHz	3008A00320	12/02/04
Hewlett Packard	8648B	Signal Generator	3443U00312	05/04/05
Hewlett Packard	8672A	Signal Generator	2211A02426	10/17/04
Eaton	96005	Log Periodic Antenna	1099	02/05/05
Electro-Metrics	LPA 30	Log Periodic Antenna	2280	01/12/05
Electro-Metrics	BIA 30	Biconical Antenna	3852	01/13/05
Electro-Metrics	BIA 25	Biconical Antenna	4283	02/04/05
Electro-Mechanics	3115	Double Ridge Guide Ant.	3810	11/25/05
Electro-Metrics	ALR30M	Magnetic Loop Antenna	824	01/12/05
Solar	8012	LISN	924840	12/24/04
Solar	8028	LISN	829012/809022	12/12/04
Solar	8028	LISN	903725/903726	12/01/04
Schwartzbeck	MDS-21	Absorbing Clamp	02581	09/18/04
Leader	LFG1310	Function Generator	8060233	05/04/05
IFR Systems	A-8000	Spectrum Analyzer	1306	12/08/04
Electro-Metrics	EMC-30	EMI Receiver	191	05/04/05
Antenna Research	ALA-130/A	Loop Antenna	106	05/03/05
Radio Shack	63-867	Temp/Hygrometer	N/A	05/04/05
Radio Shack	63-867A	Temp/Hygrometer	N/A	05/04/05

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Radiated Emissions @ 3 meters

Freq	Observed Amplitude	ACF	Cable Loss	Preamp Gain	Total Adj	Peak Amplitude	Limit	Average Corrrection	Adjusted Limit	Delta Limit
MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB
360.1	96.6	15.0	0.6	26	-10.4	86.2	77.9	11.9	89.8	-3.6
720.2	57.6	21.5	1.1	26	-3.4	54.2	57.9	11.9	69.8	-15.6

Calculation of Limit

(12,500 uV - 3750 uV) / (470 MHz - 260MHz) = 41.67 uV / MHz

(470 mhZ - 360 mhZ) = 110 MHZ
(110 MHz X 41.67) = 4583.7 uV
(12,500 uV - 4,583.7 uV) = 7916.3 uV

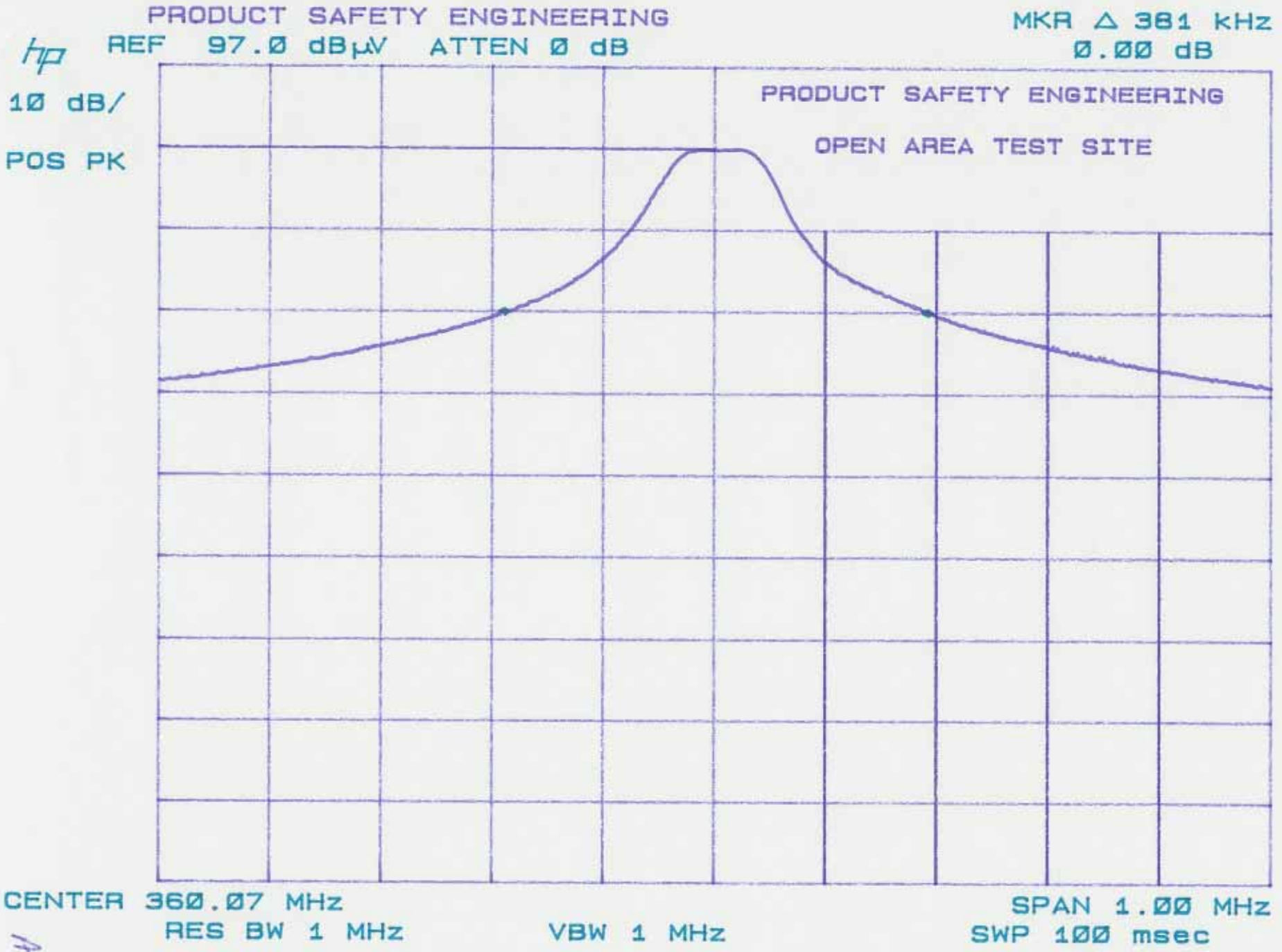
(20 log 7916.3) = 77.97 dB

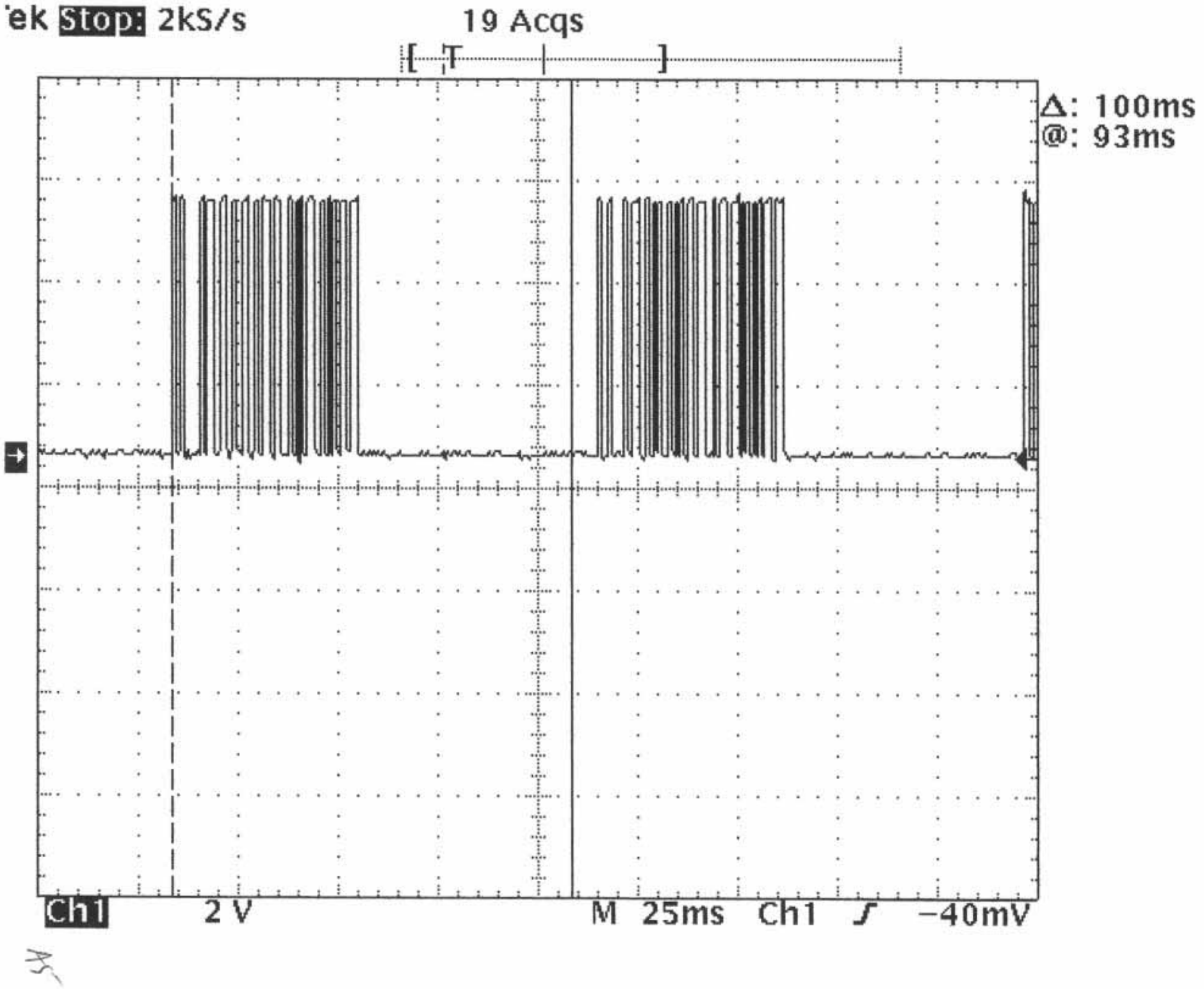
Calculation of Average correction

Total number of pulses within (100) milliseconds = 78
Total of 49 pulses at 0.4 milliseconds = 19.6 milliseconds
Total of 29 pulses at 0.2 milliseconds = 5.8 milliseconds

Total on time = 25.4 milliseconds

20 log 25.4/100 = -11.9 dB


PRODUCT SAFETY ENGINEERING
REF 97.0 dBµV ATTEN 0 dB
MKR Δ 381 kHz
0.00 dB
10 dB/
POS PK
PRODUCT SAFETY ENGINEERING
OPEN AREA TEST SITE
CENTER 360.07 MHz
SPAN 1.00 MHz
RES BW 1 MHz
VBW 1 MHz
SWP 100 msec


ek Stop: 2kS/s
19 Acqs
Δ: 100ms
@: 93ms
Ch1 2 V
M 25ms Ch1 ∫ −40mV

APPENDIX

B

System Under Test Description

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SYSTEM COMPONENTS

****

DEVICE TYPE: EUT, GENIE GARAGE DOOR TRANSMITTER

****

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APPENDIX

C

Measurement Protocol

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The test methodology followed during the collection of the data included within this technical report was ANSI C63.4:1992.

The EUT was powered with 9 Volts DC during the collection of data included within.

The data is compared to the FCC Part 15 limits.

The "EMI" instrumentation is capable of calculating the final emission level based on the following formula:

Level at the receiver (dBμV) + Antenna Correction Factor (dB/M) + Cable Loss (dB) - Preamp Gain (dB) = Actual Level in dBμV/M.

The sample calculation below is based on the actual test data collected:

Observed Level		**91.4**	dBμV	
ACF	+	**15.0**	dB/M	
Cable Loss	+	**0.6.** **6**	dB	
Preamp Gain	-	**26.0**	dB	
Actual Level		**81.0**	dBμV/M	@ 360.0 MHz

Please have a company official review this report and sign.

_____