ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT
CERTIFICATION TO FCC PART 15 REQUIREMENTS

for

INTENTIONAL RADIATOR

27 MHz RADIO CONTROL CAR TRANSMITTER

MODEL NO: 95087-27T

BRAND NAME: TYCO R/C-6V THUNDERBIRD

FCC ID NO: APB95087-00A2T

REPORT NO: 01U0707-1

ISSUE DATE: MARCH 12, 2001

Prepared for
MATTEL MT. LAUREL
6000 MIDATLANTIC DRIVE
MOUNT LAUREL, NJ 08054
USA

Prepared by
COMPLIANCE ENGINEERING SERVICES, INC.
d.b.a.
COMPLIANCE CERTIFICATION SERVICES
561 F MONTEREY ROAD
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EXHIBIT

1. Proposed FCC ID Label Format
2. Agent Authorization Letter

Attachment

- EUT Photographs
- Schematic Diagram

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1. VERIFICATION OF COMPLIANCE

COMPANY NAME	:	MATTEL MOUNT LAUREL 6000 MIDATLANTIC DRIVE MOUNT LAUREL, NJ 08054 USA
CONTACT PERSON	:	FRANK WINKLER/ SENIOR ELECTRONIC ENGINEER
TELEPHONE NO.	:	856-840-1259
EUT DESCRIPTION	:	27 MHz RADIO CONTROL CAR TRANSMITTER
MODEL NAME/NUMBER	:	95087-27T
BRAND NAME	:	TYCO R/C-6V THUNDERBIRD
SERIAL NUMBER	:	N/A
FCC ID	:	APB95087-00A2T
DATE TESTED	:	MARCH 08, 2001
REPORT NUMBER	:	01U0707-1

TYPE OF EQUIPMENT	REMOTE CONTROL
EQUIPMENT TYPE	27 MHZ TRANSMITTER
MEASUREMENT PROCEDURE	ANSI 63.4 / 1992
EQUIPMENT AUTHORIZATION TYPE	CERTIFICATION
FCC RULE	CFR 47, PART 15.227

The above equipment was tested by Compliance Engineering Services, Inc. for compliance with the requirements set forth in CFR 47, PART 15. This said equipment in the configuration described in this report shows that maximum emission levels emanating from equipment are within the compliance requirements.
Warning : This document reports conditions under which testing was conducted and results of tests performed. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification will constitute fraud and shall nullify the document.

Tested and/or Reviewed By:

PETE KREBILL
ASSOCIATE EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

Released For CCS By:

THU CHAN
SENIOR EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

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2. PRODUCT DESCRIPTION

CHASSIS TYPE	**PLASTIC**
Fundamental Frequency	**27.145 MHz**
Power Source	**ONE 9 VOLT BATTERY**
CHIPSET BRAND AND PART NO	**MATTEL. 95087-27T/TX**
Transmitting Time	**CONTINUOUS**
Type of antenna	**PERMANENTLY ATTACHED**
NO. OF LAYER	**1**
Local Osc.	**27.145MHz**

3. TEST FACILITY

The 3/10/30 meter open area test site and conducted measurement facility used to collect the radiated data is located at 561F Monterey Road, Morgan Hill, California, U.S.A. A detailed description of the test facility was submitted to the Commission on May 27,1994.

4. MEASUREMENT STANDARDS

The site is constructed and calibrated in conformance with the requirements of ANSI C63.4/1992.

5. TEST METHODOLOGY

For an intentional radiator, the spectrum shall be investigated from the lowest radio frequency signal generated in the device, without going below 9 KHz, up to at least the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower. (CFR 47 Section 15.33)

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6. MEASUREMENT EQUIPMENT USED

Manufacturer	Model Number	Description	Cal Due Date
H.P.	8568B	Spectrum Analyzer (100 Hz-1.5 GHz)	07/14/01
EMCO	6502	Active Loop Antenna (10 K-30 MHz)	02/23/01
EMCO	3146	Antenna, Log Periodic (200-2000 MHz)	10/2001
EATON	94455-1	Antenna, Biconical	09/12/01

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7. POWER LINE RFI LIMIT

CONNECTED TO AC POWER LINE	SECTION 15.207
CARRIER CURRENT SYSTEM IN THE FREQUENCY RANGE OF 450 KHz TO 30MHz	SECTION 15.205 AND SECTION 15.209, 15.221, 15.223, 15.225 OR 15.227, AS APPROPRIATE.
BATTERY POWER	NOT REQUIRED.

8. RADIATED EMISSION LIMITS

GENERAL REQUIREMENTS	SECTION 15.209
RESTRICTED BANDS OF OPERATION	SECTION 15.205
OPERATION WITHIN THE BAND 26.96 - 27.28 MHZ	SECTION 15.227

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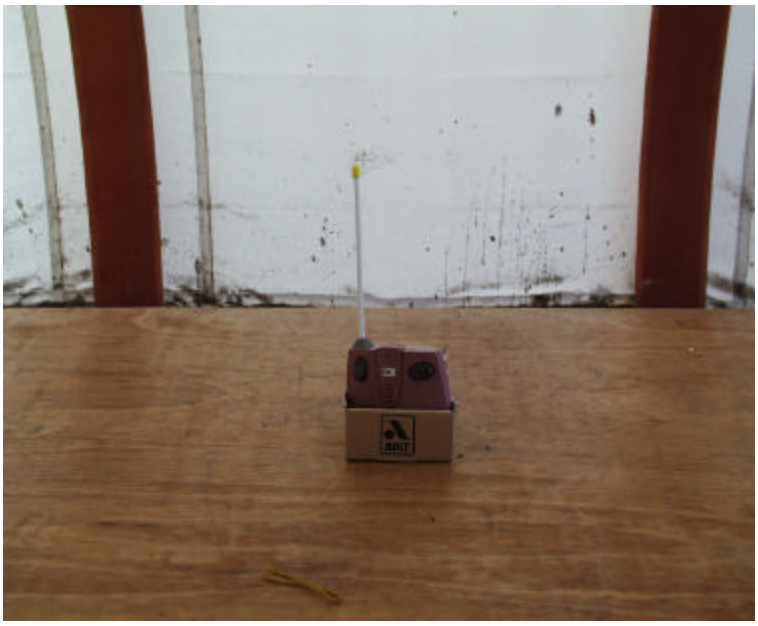
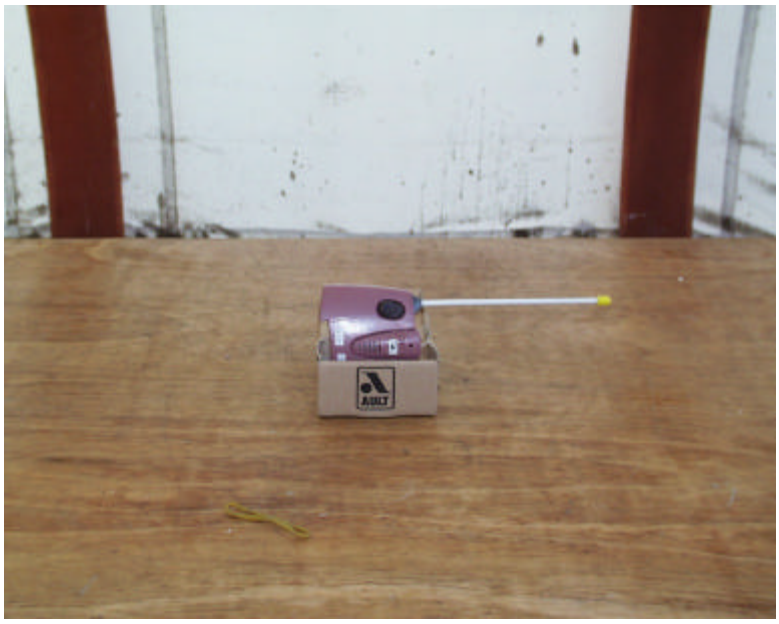
9. SYSTEM TEST CONFIGURATION

The EUT was configured for testing in a typical fashion (as a customer would normally use it). Push-to-Transmit switch is held in transmit position using electrician's (PVC) tape for transmit mode. The tape is removed for receive mode. Please refer to the following photograph for actual setup.





Radiated Open Site Test Set-up

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10. EQUIPMENT MODIFICATIONS

To achieve compliance to FCC Section 15.227 technical limits, the following change(s) were made during compliance testing:

No changes were required in order to achieve compliance to FCC Section 15.227.

11. TEST PROCEDURE AND RESULT

Powerline RFI Limits	Eut	Radiated Emission Limits	Eut
SECTION 15.207		SECTION 15.209	x
SECTION 15.205, 15.209, 15.221, 15.223, x 15.225 OR 15.227	X	SECTION 15.205	x
BATTERY POWER	X	SECTION 15.227	X

11.1 RADIATION EMISSION TEST PROCEDURE AND RESULT

1. The EUT was placed on a wooden table on the outdoor ground plane. The search antenna was placed 3 meter from the EUT. The EUT antenna was mounted vertically as per normal installation.

2. The turntable was slowly rotated to locate the direction of maximum emission at each emission falling in the restricted bands of 15.205. The EUT was moved throughout the XY, XZ, and YZ planes to maximize emissions received by the search antenna.

3. Once maximum direction was determined, the search antenna was raised and lowered in both vertical and horizontal polarizations. The six maximum readings so obtained are recorded in the data listed below.

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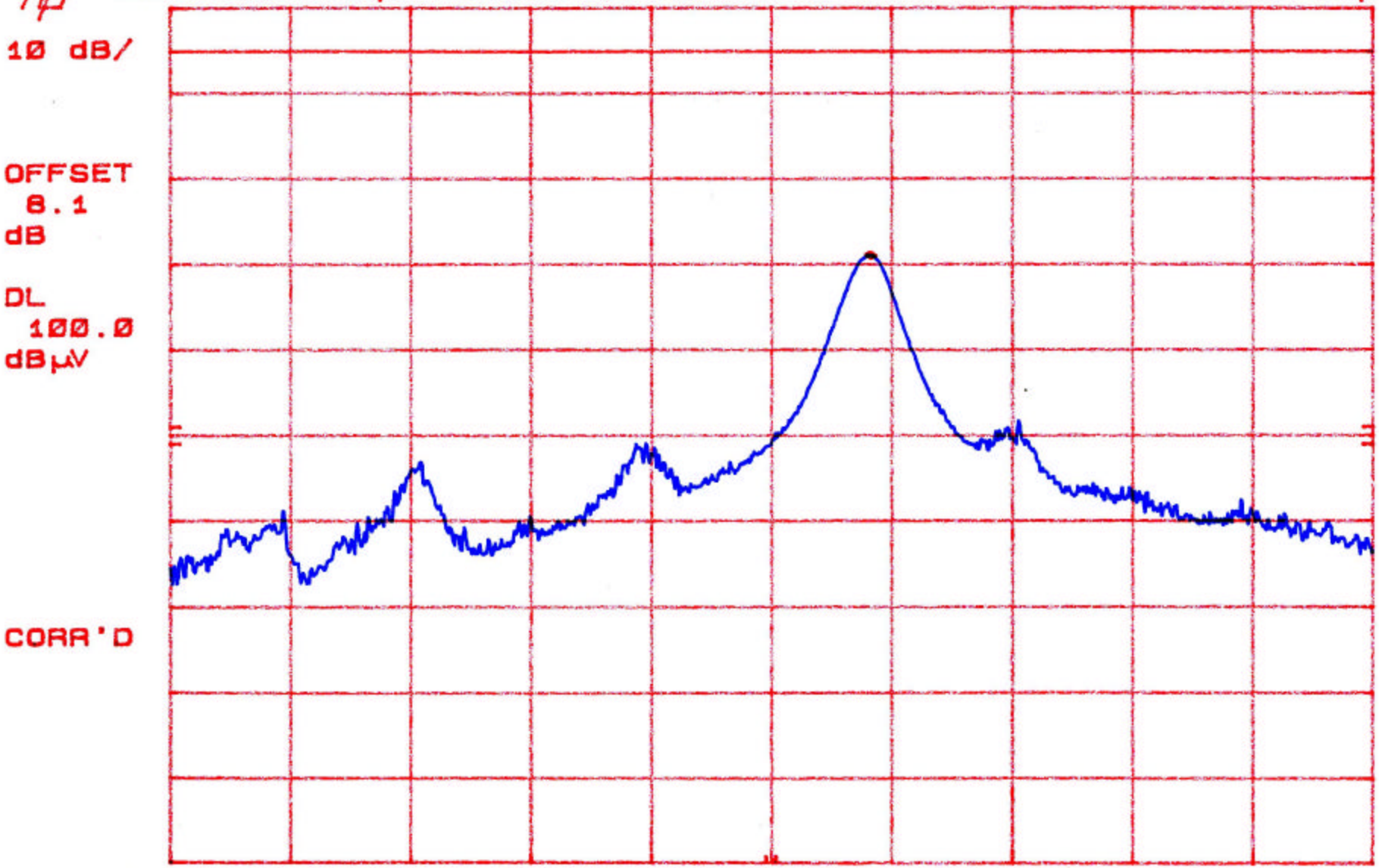
PK

MATTEL 27MHz TX M/N 95087-27T

REF 105.1 dBμV ATTEN 10 dB

MKR 27.1462 MHz

76.10 dBμV



START 26.9600 MHz

RES BW 10 kHz

VBW 10 kHz

STOP 27.2800 MHz

SWP 30 msec

PK

MATTEL 27MHz TX M/N 95087-27T

REF 95.1 dBμV ATTEN 10 dB

MKR 27.1462 MHz
64.30 dBμV

hp

10 dB/

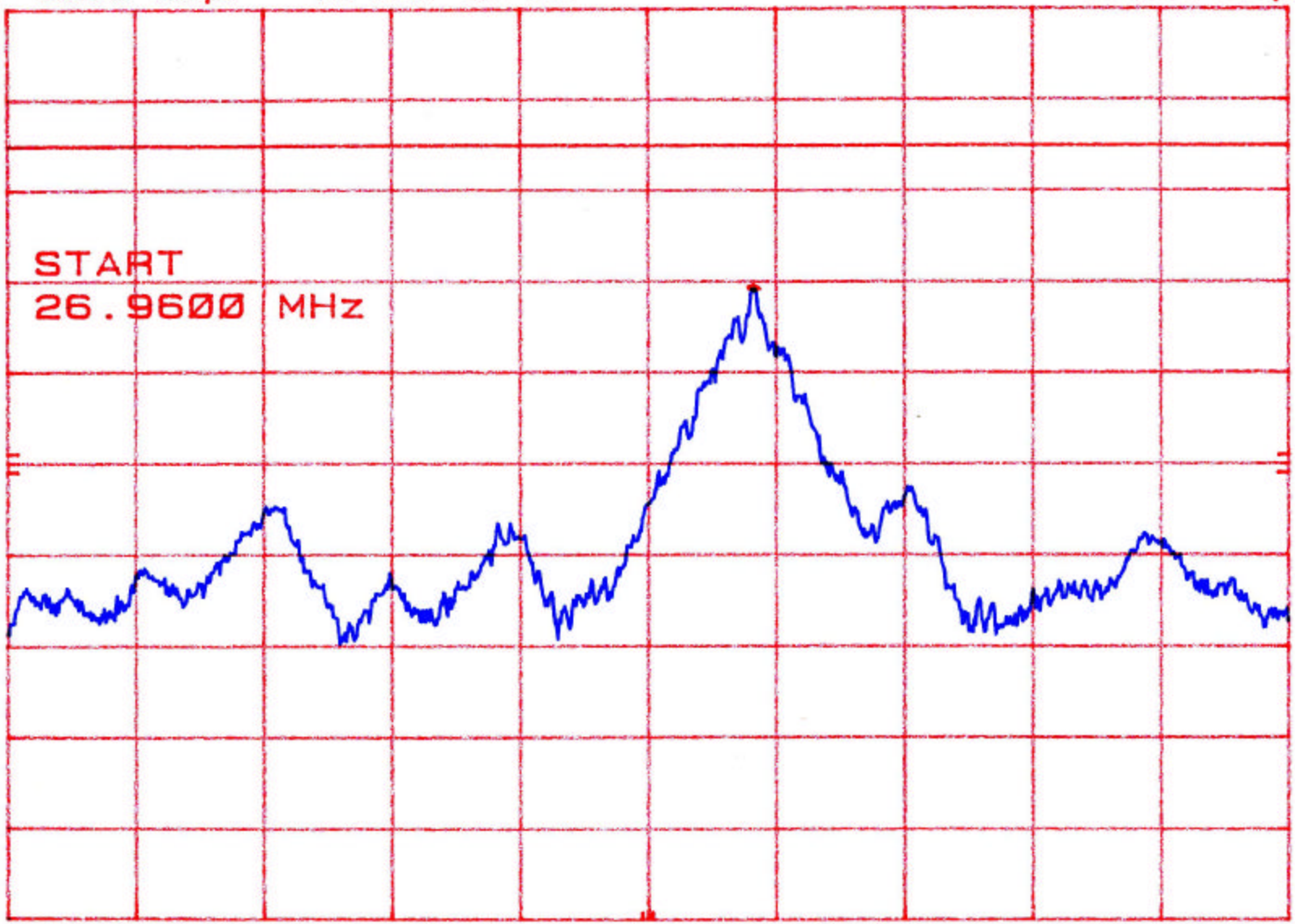
SAMPLE

OFFSET
8.1
dB

DL
80.0
dBμV

VID AVG
100

CORR'D



START 26.9600 MHz
RES BW 10 kHz

VBW 10 kHz

STOP 27.2800 MHz
SWP 30 msec

COMPLIANCE
Certification Services

FCC, VCCI, CISPR, CE, AUSTEL, NZ
UL, CSA, TUV, BSMI, DHHS, NVLAP

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PK

Project #: 01U0707
Report #: 010308C2
Date& Time: 03/08/01 10:17 AM
Test Engr: Pete Krebill

Company: Mattel Mount Laurel FW
EUT Description: 27MHz Radio Control TX M/N:95087-27T
Test Configuration : EUT only
Type of Test: FCC 15.227/15.209
Mode of Operation: TX

A-Site | B-Site | C-Site | F-Site | 6 Worst Data | Descending

Freq. (MHz)	Reading (dBuV)	AF (dB)	Closs (dB)	Pre-amp (dB)	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Pol (H/V)	Az (Deg)	Height (Meter)	Mark (P/Q/A)
54.29	48.40	8.92	1.02	27.26	31.08	40.00	-8.92	3mV	0.00	1.00	P
Above Y-Axis											
X-Axis											
54.29	33.80	10.09	1.02	27.26	17.65	40.00	-22.35	3mH	270.00	1.50	P
81.43	31.40	8.79	1.22	27.22	14.18	40.00	-25.82	3mH	0.00	1.50	P
Z-Axis											
54.29	31.30	10.09	1.02	27.26	15.15	40.00	-24.85	3mH	0.00	2.00	P
81.43	30.10	8.79	1.22	27.22	12.88	40.00	-27.12	3mH	180.00	1.50	P
Below are noise floor readings of frequencies to the 10th harmonic of the EUT within restricted bands.											
108.58	41.00	10.75	1.47	27.12	26.10	43.50	-17.40	3mV	0.00	1.00	P
135.73	36.60	14.14	1.66	27.02	25.38	43.50	-18.12	3mV	0.00	1.00	P
162.87	38.30	17.21	1.77	26.89	30.39	43.50	-13.11	3mV	0.00	1.00	P
244.31	37.80	12.74	2.24	26.55	26.23	46.00	-19.77	3mV	0.00	1.00	P
271.45	37.50	13.99	2.36	26.47	27.38	46.00	-18.62	3mV	0.00	1.00	P
Total data # 10.											
V.2c											