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EXHIBIT E: REPORT OF MEASUREMENTS [2.1033(B6)]

Test Report for FCC ID: NZLSTDHL3

FCC Part 2.1031, Part 15 Subpart C(15.231)

Report #0100443F
Issued 08/08/01

NVS❶ MIRROR WITH HOMELINK® III TRANSMITTER MODEL NZLSTDHL3

Prepared for: Mr. Brian Perschbacher
Gentex Corporation
600 N. Centennial St.
Zeeland, MI 49464

Test Date(s): July 16-17, 2001

data recorded by

Ted Chaffee, NCE
Test Engineer, AHD

witnessed by

Brian Perschbacher

This report prepared by:

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Statements Concerning this Report

Test Traceability:
The calibration of all measuring and test equipment and the measured data using this equipment are traceable to the National Institute for Standards and Technology (NIST).

Limitations on results:
The test results contained in this report relate only to the Item(s) tested. Any electrical or mechanical modification made to the test item subsequent to the test date shall invalidate the data presented in this report. Any electrical or mechanical modification made to the test item subsequent to this test date shall require an evaluation to verify continued compliance.

Limitations on copying:
This report shall not be reproduced, except in full, without the written approval of AHD.

Limitations of the report:
This report shall not be used to claim product endorsement by NVLAP, FCC, or any agency of the US Government.

Statement of Test Results Uncertainty: Following the guidelines of NAMAS publication NIS81 and NIST Technical Note 1297, the Measurement Uncertainty at a 95% confidence level is determined to be: ±3.6 dB

Manufacturer/Applicant [2.1033(b1)]

The manufacturer and applicant:

GENTEX CORPORATION
600 N. Centennial St.
Zeeland, Michigan 49464

Measurement/Test Site Facility & Equipment

Test Site [2.948, 2.1033(b6)]

The AHD test facility is centered on 9 acres of rural property near Sister Lakes, Michigan. The mailing address is 92723 M-152, Dowagiac, Michigan 49047. This test facility is NVLAP accredited (LabCode 200129-0). It has been fully described in a report filed with the FCC and Industry Canada. The original report filed with the FCC is, dated November 5, 1996, was accepted by the FCC in a letter dated January 15, 1997 and reconfirmed July 14, 2000, (31040/SIT 1300F2). The original report filed with Industry Canada, dated August 11, 1998, was accepted via a letter dated September 1, 1998, (file:IC3161).

Measurement Equipment Used [2.947(d), 15.31(b)]

Equipment	Model	S/N	Last Cal Date	Calibration Interval
HP EMI Receiver system	HP 8546A			
RF Filter Section	HP-85460A	3448A00283	24-Aug-00	12 month
RF Receiver Section	HP-85462A	3625A00342	24-Aug-00	12 month
EMCO BiconiLog Antenna	3142	1077	28-Jul-00	12 months
Double Ridged Horn	ONO91202-2	A00329	17-Apr-01	12 months
(3-M) Type 129FF Ultra Flex LowLoss	RG58/U	9910-12	08-Jun-01	6 months
(3-M) LMR-400 Ultra Flex	LMR400	9812-11	08-Jun-01	6 months
(10-M) Amelco 50ohm Coax	RG213/U	9903-10ab	08-Jun-01	6 months
50ohm Coax	RG223/U	9802302	11-Jun-01	12 months

Measurement Environment

The tests were performed with the equipment under test, and measurement equipment inside the all-weather enclosure. Ambient temperature was 22deg.C., the relative humidity 40%.

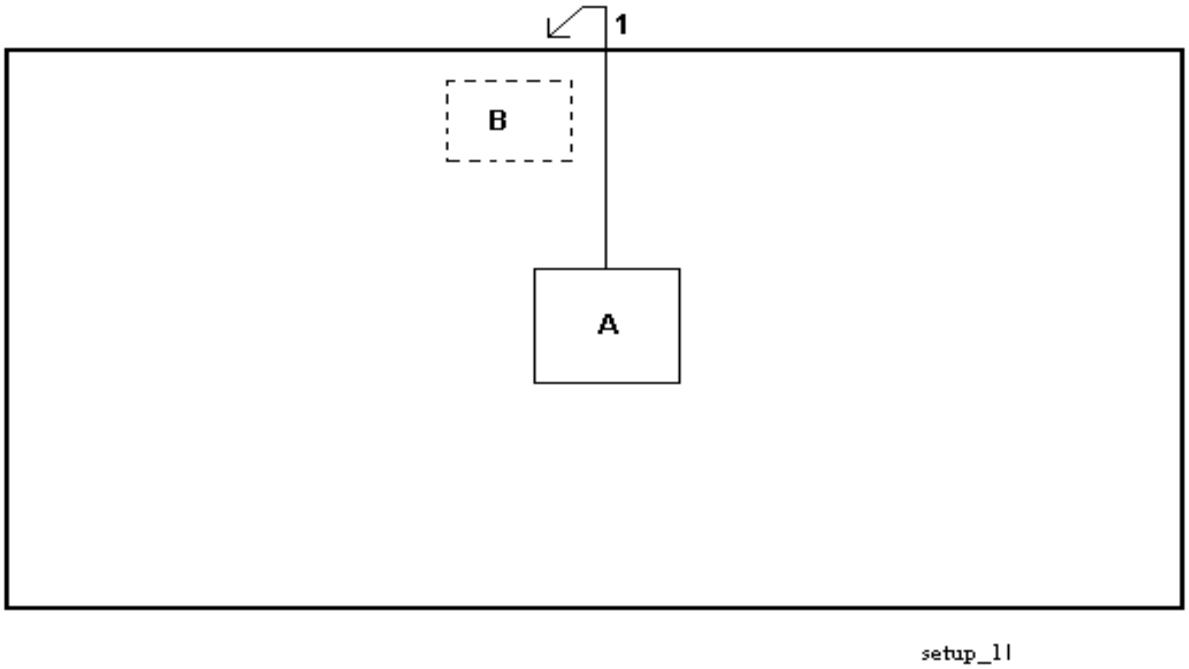
Tested Configuration /Setup: [2.1033(b8)]

Support Equipment & Cabling

Setup Diagram Legend	Description	Model	Serial No. / Part No.	EMC Consideration
A	[EUT] NVS❶ Mirror with Homelink® Garage Door Opener	[GENTEX] NZLSTDHL3	905-0545	FCC ID: NZLSTDHL3
B	12V DC Power Supply	[Trygon] DL40-1	7968152	Located on the turntable base below the EUT table.
1	Power Supply Cable Harness	--	--	1.5 meters, Unshielded, 2-lead lightly twisted cable harness.

Setup Diagram

Note: Setup photographs are located in Attached Electronic File, Exhibit E.



BASIC EUT SETUP
(Legend designation is above)

Summary of Results:

1. This test series evaluated the Equipment Under Test to FCC Part 15, SubPart C.
2. The system tested is compliant to the requirement of CFR 47, FCC Part 15, SubPart C for periodic operation in the allowed frequency bands above 70MHz, (Part 15.231).
3. The equipment under test was received on July 16, 2001 and this test series commenced on July 16, 2001.
4. The line conducted emission testing does not apply to this product. The device is powered from a 12 volt automobile source.
5. The frequencies selected for final evaluation include 288MHz, 310MHz, and 418MHz. This is in accordance with 47 CFR 15.31(m). The 310MHz was selected as a mid-range frequency because it is the predominant frequency used in controlling garage doors. Past correspondence with the FCC regarding the selection of frequencies and test setup suggest this judgment as appropriate.
6. Occupied Band Width of the transmitted signal, at the 20dB point, nearest the limit was measured to be 500KHz. This measurement occurred with the EUT transmitting at 288MHz with a pulse modulation of 30% duty cycle. This measurement is within the allowed 720KHz bandwidth. The greatest value of occupied bandwidth was measured to be 560KHz. This measurement occurred with the EUT transmitting at 418MHz with a pulse modulation of 80% duty cycle. This measurement is within the allowed 1045KHz bandwidth.
7. The preliminary scan for spurious emissions conducted in a shielded room indicated low level spurious signals.
8. The digital spurious emission, which was measurable and nearest the limit, occurred at 294.8MHz. The quasi-peak level was measured to be 13.4dBuV/m which is 32.6dB below the FCC Class B limit.
9. The field strength level of the fundamental was measured for 288MHz, 310MHz, and 418MHz. The evaluation showed the emission nearest the limit occurred while operating at 310MHz with 500Hz pulsed modulation at a 50% duty cycle. The EUT was positioned on the ‘side’ and the receive antenna oriented in the horizontal polarization. This signal was measured to be 1.4dB below the limit of 75.3dBuV/m (5833uV/m).
10. The evaluation of the field strength levels of the harmonics showed the emission nearest the limit occurred while operating at 288MHz with 500Hz pulsed modulation at 30% duty cycle. The EUT was positioned on the ‘end’; and the receive antenna oriented in the horizontal polarization. This signal, at 576MHz, was measured to be 11.4dB below the limit of 53.8dBuV/m (490uV/m).
11. The average value of the coarse tune pulses over a 100mSec time, nearest the limit, occurred at 418MHz. The average measurement was determined to be 7233uV/m which is 3.1dB below the limit of 10,333uV/m..
12. The average value of the fine tune pulses over a 100mSec time, nearest the limit, occurred at 418MHz. The average measurement was determined to be 1627uV/m which is 16.1dB below the limit of 10,333uV/m.

Changes made to achieve compliance

1. NONE

Standards Applied to Test: [2.1033(b6)]

ANSI C63.4 - 1992, Appendix I
CFR47 FCC Part 2, Part 15, SubPart C, 15.231 Intentional Radiator; SubPart B, Digital Device

Test Methodology: [2.1033(b6)]

The pictures in this report, showing test setups, indicate the agreed upon configuration of testing for this product-type.

For the testing, the Universal Garage Door Opener Transmitter was installed in the automotive rearview mirror for which it has been designed. The system was placed at the center of the table 80cm above the ground plane pursuant to ANSI C63.4 for stand-alone equipment. The 12volt supply harness was routed to the edge of the long side of the table then down to the power supply located on the turntable base.

The line conducted emission testing was not performed on this product. In its final configuration the product is powered from an automobile 12 volt system only.

Radiated

The system was placed upon a 1 x 1.5 meter non-metallic table 80cm above the open field site ground plane in the prescribed setup per ANSI C63.4, Figure 9(c).

The table sits upon a remote controlled turntable. The receiving antenna, located at the appropriate standards distance of 3 or 10 meters from the table center, is also remote controlled.

The principle settings of the EMI Receiver for radiated testing include:

IF Bandwidth:	120KHz for frequencies less than 1GHz.
	1 MHz for frequencies greater than 1GHz.
Detector Function:	Peak Mode
	The Average levels were determined mathematically based upon the duty cycle of the pulsed modulation of the transmitted signal.

At frequencies up to 1000MHz a BiconiLog broadband antenna was used for measurements.

At frequencies above 1000MHz a double-ridge Horn broadband antenna was used for measurements.

During the evaluation the EUT was transmitting continuously.

The turntable was rotated 360 degrees and the receiving antenna height varied from 1 to 4 meters to search out the highest emissions.

Preliminary tests were done at 288MHz, 310MHz, 340MHz, 365MHz, 390MHz, and 418MHz. The final measurements were made at a low band frequency (288MHz), a mid band frequency (310MHz), and a high band frequency (418MHz) pursuant to the requirements of 47CFR 15.31(m). At each frequency the EUT was placed in three orthogonal positions. At each position the 500Hz pulse modulation was adjusted to a 30%, 50%, and 80% duty cycle. At each duty cycle, measurements were taken with the receive antenna in vertical and horizontal positions.

The unit was evaluated up to the tenth harmonic of the fundamental as an intentional radiator, and up to 1000MHz as a digital device.

The orthogonal positions of EUT are:

Flat Side End

FORMULAS AND SAMPLE CALCULATIONS:

THE HP8546A EMI Receiver has stored in memory the antenna and coax correction factors used in this test. The resultant Field Strength (FS) in dBuV/m presented by the HP8546A is the summation in decibels (dB) of the Received Level (RF), the Antenna Correction Factor (AF), and the Cable Loss Factor (CF).

Formula 1: FS(dBuV/m) = RF(dBuV) + AF(dB/m) +CF(dB)

The resultant Field Strength measurement is recorded using the peak hold detector of the HP8546A.

This recorded peak level is further corrected, by calculation, to an average level by a factor determined by the duty cycle of the pulsed modulation. The duty cycle factor is determined as outlined in Appendix I4 of the standard ANSI C63.4:1992.

Formula 2: Average Level(uV/m) = [Peak Level(uV/m)] x [duty cycle factor].

Formula 2a: Average Level(dBuV/m) = Peak Level)dBuV/m) + duty cycle factor(dB).

The duty cycle factor to apply is determined for the duty cycles of 30%, 50% and 80% as follows.

For 30% (0.30): duty cycle factor(dB) = 20*Log(0.3) = -10.46
For 50% (0.50): duty cycle factor(dB) = 20*Log(0.5) = -6.02
For 80% (0.80): duty cycle factor(dB) = 20*Log(0.8) = -1.94

As an example:

A measured peak level of 50% duty cycle pulse modulated signal is 500uV/m.
Calculated to dBuV/m is 20*Log(500) = 53.98dBuV/m Peak level.
Applying the duty cycle factor: Avg. Level(dBuV/m) = 53.98 - 6.02dB = 47.96dBuV/m.

Calculation of FCC limits Part 15.231

> For the frequency range 260MHz - 470MHz, the limit is a linear interpolation between 3750uV/m and 12500uV/m where the limit at 260MHz is 3750uV/m and the limit at 470MHz is 12500uV/m.

A formula to calculate the limit is established with a ratio linearly equating the frequency range to the limit range.

$$(F_0 - F_L) / (F_H - F_L) = (L_0 - L_L) / (L_H - L_L)$$

where F_0 and L_0 represent the frequency in question and its limit
where F_L and L_L represent the lower frequency (260MHz) and its limit (3750uV/m).
Where F_H and L_H represent the higher frequency (470MHz) and its limit (12500uV/m).

The calculations for the frequencies included in the application are:

288MHz (288 - 260) / (470 - 260) = (L_0 - 3750) / (12500 - 3750)
(28 / 210) * (8750) = L_0 - 3750
L_0 = 1166.7 + 3750
L_0 = 4916.7 uV/m is LIMIT at 288MHz

310MHz (310 - 260) / (470 - 260) = (L_0 - 3750) / (12500 - 3750)
(50 / 210) * (8750) = L_0 - 3750
L_0 = 2083.3 + 3750
L_0 = 5833.3 uV/m is LIMIT at 310MHz

418MHz (418 - 260) / (470 - 260) = (L_0 - 3750) / (12500 - 3750)
(158 / 210) * (8750) = L_0 - 3750
L_0 = 6583.3 + 3750
L_0 = 10333.3 uV/m is LIMIT at 418MHz

The limit in dB terms is calculated as the result of 20 times the log of the uV/m limit.

288MHz dB limit is 20 * LOG(4916.7 uV/m) = 73.8 dBuV/m

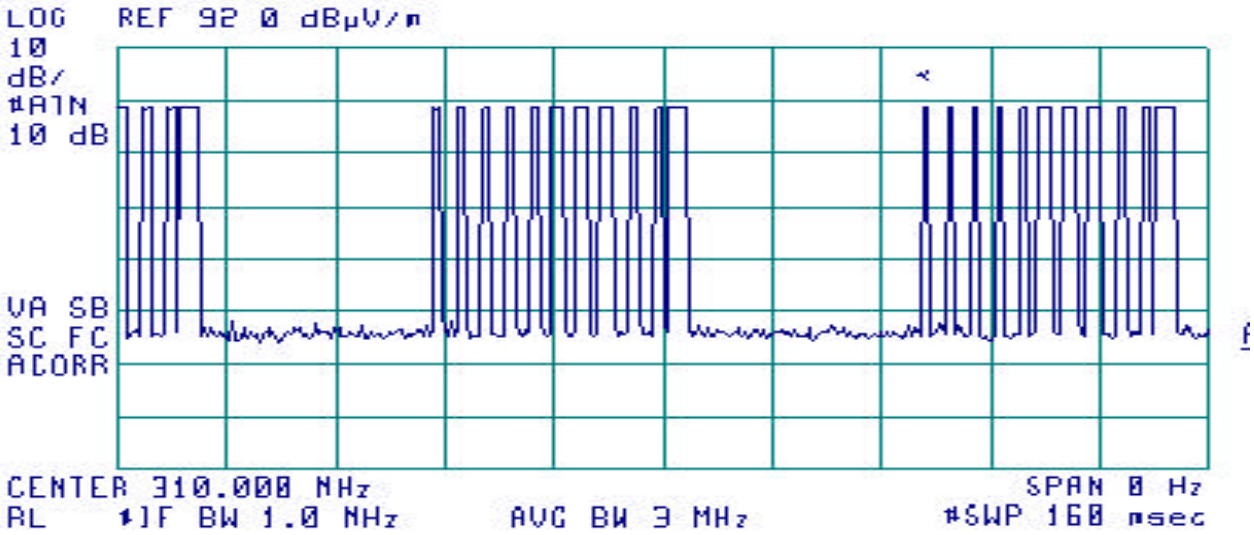
310MHz dB limit is 20 * LOG(5833.3 uV/m) = 75.3 dBuV/m

418MHz dB limit is 20 * LOG(10333.3 uV/m) = 80.3 dBuV/m

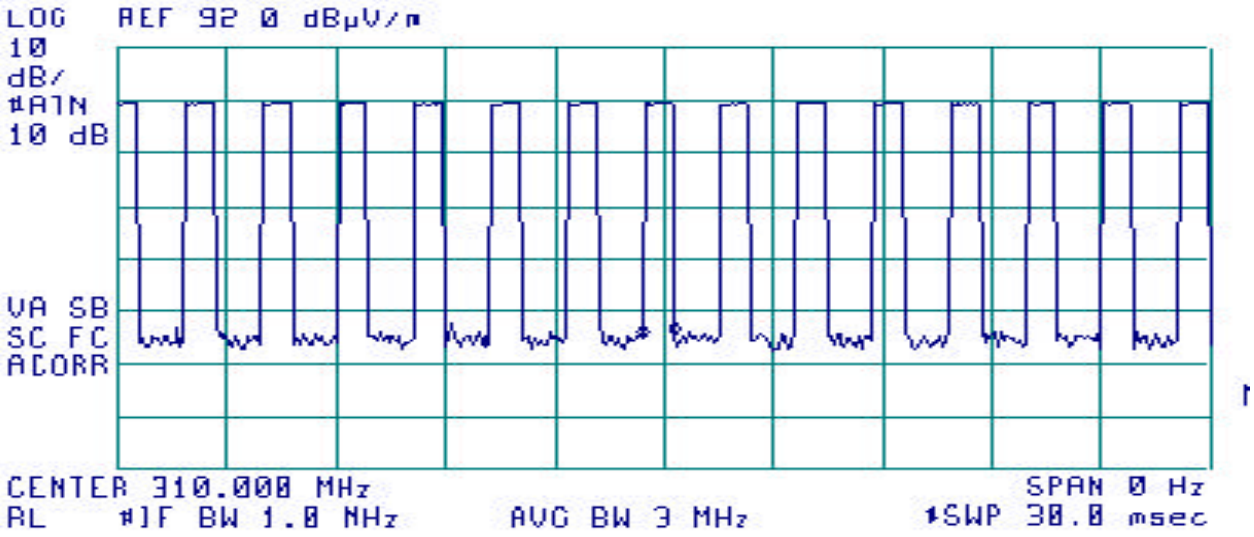
Test Data [2.1033(b6)]

Modulation Characteristics

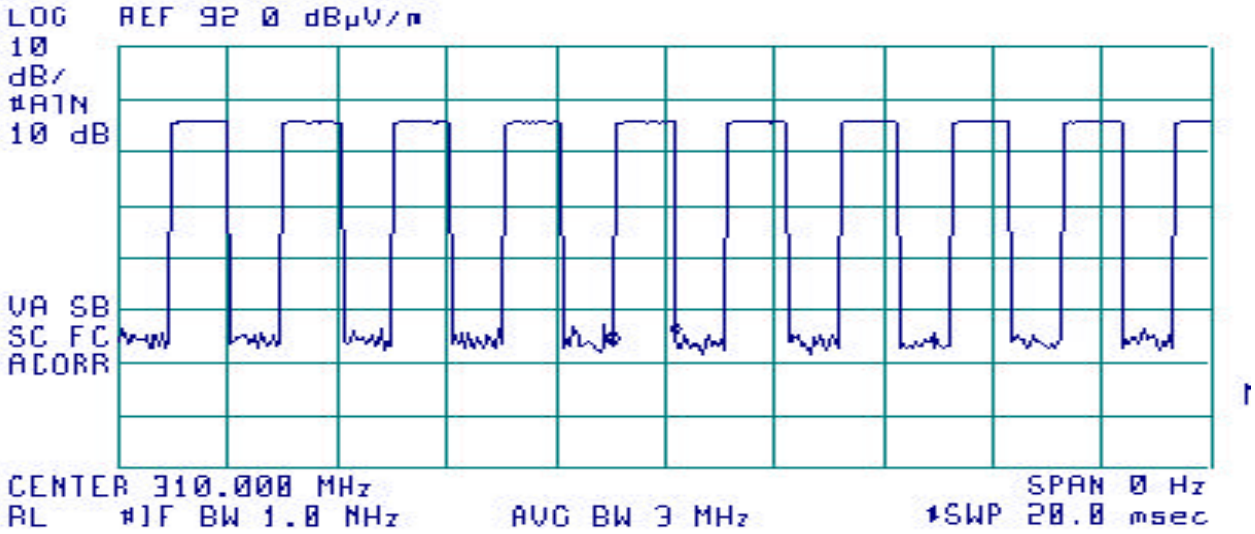
Typical encoding at 310MHz: Consisting of pulses of differing duty cycles.



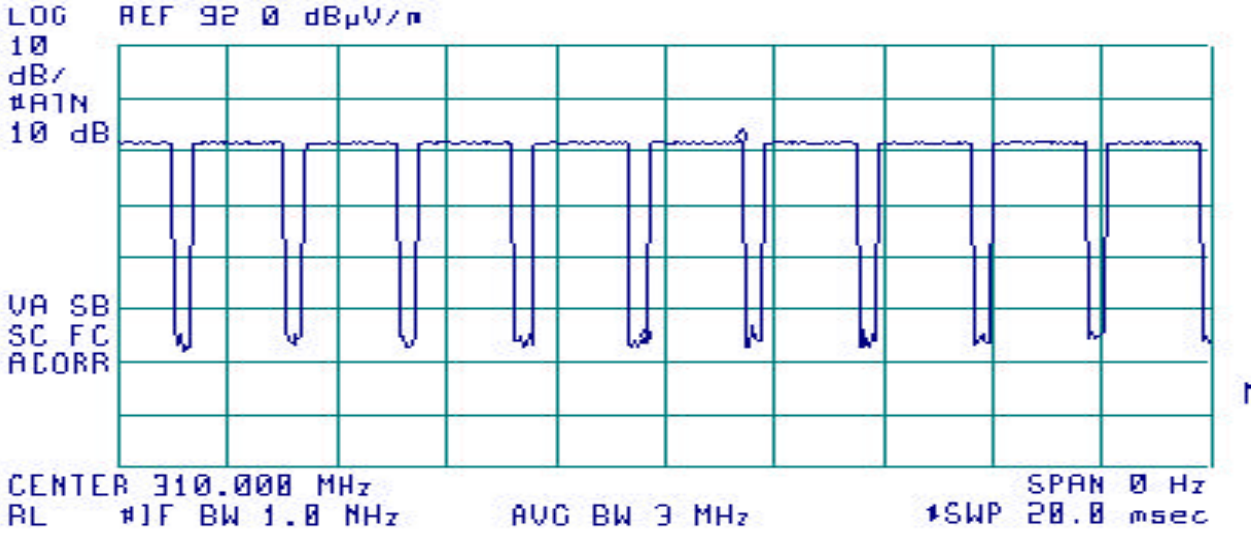
310MHz, 500Hz Modulation, 30% duty cycle



310MHz, 500Hz Modulation, 50% duty cycle



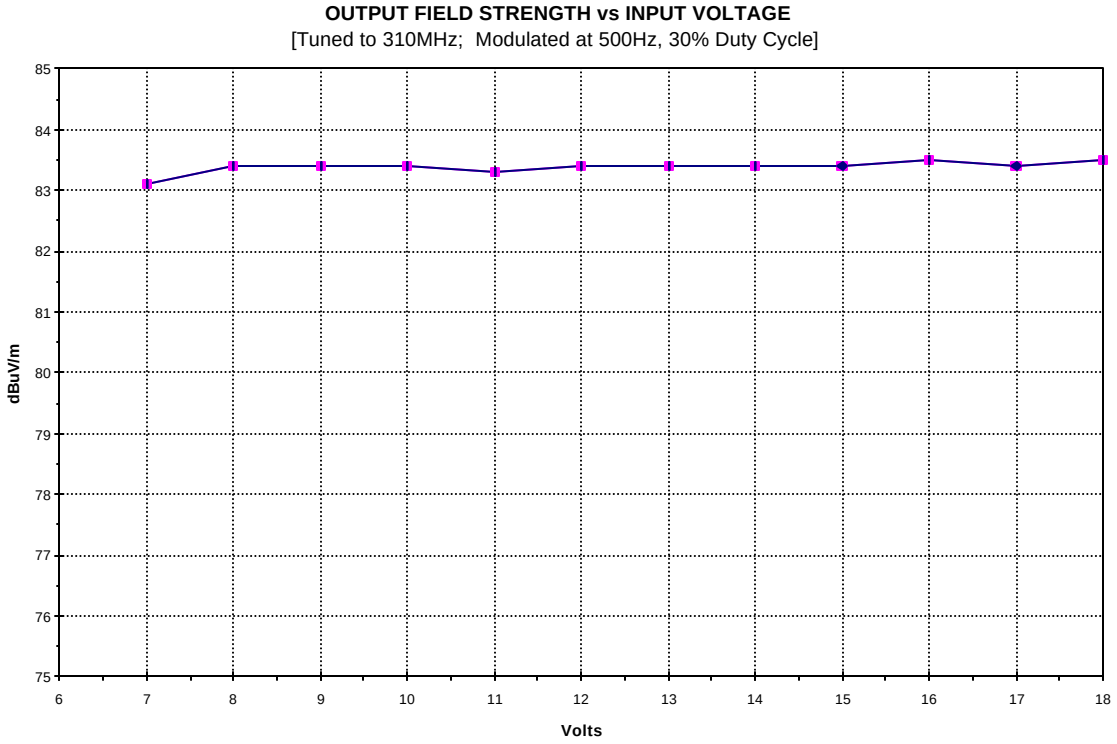
310MHz, 500Hz Modulation, 80% duty cycle



Relative Emission Level vs. Supply Voltage [15.31(e)]

The relative emission level as the supply voltage varied is presented in the charts below.

TX OUTPUT vs. Voltage LEVEL DUT= NZLSTDHL3, 310MHz, 30%duty cycle	
Volt In	TX OutPut Pk dBuV/m
6	NoOperation
7	83.1
8	83.4
9	83.4
10	83.4
11	83.3
12	83.4
13	83.4
14	83.4
15	83.4
16	83.5
17	83.4
18	83.5



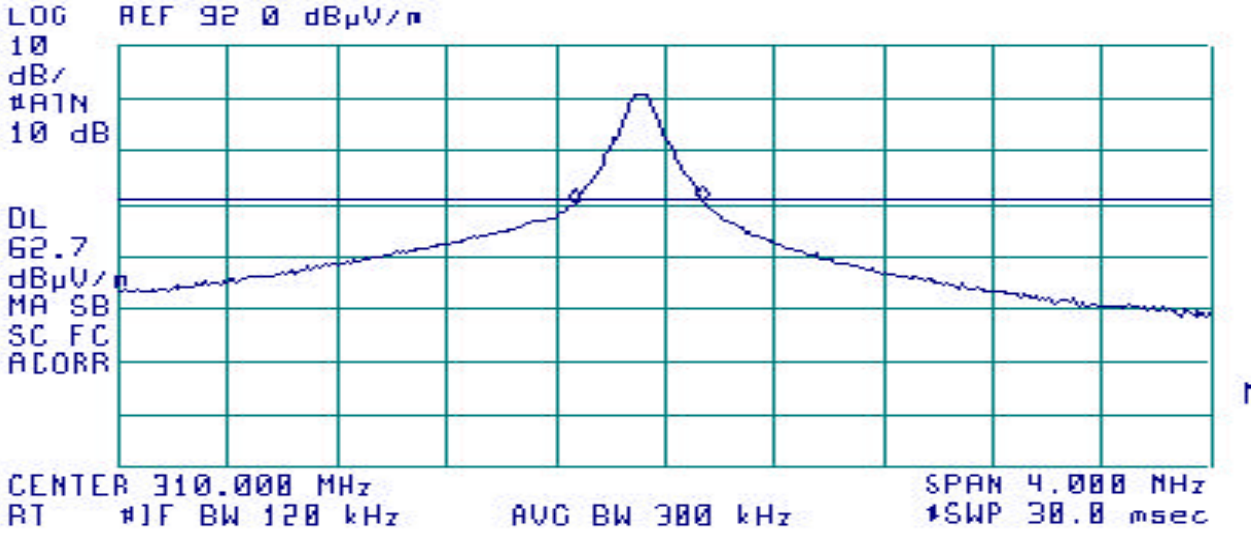
Occupied Bandwidth [15.231(c)]

The maximum allowed 20dB bandwidth is determined pursuant to 15.23(c). For fundamental signals between 70MHz and 900MHz the bandwidth allowed is 0.25% of the fundamental.

Formula 2: Allowed bandwidth = [Fundamental] x [.0025]

Fundamental (MHz)	Duty Cycle	Measured 20dB Bandwidth	LIMIT Fundamental * .0025
288	30%	500 KHz	720 KHz
"	50%	500 KHz	720 KHz
"	80%	500 KHz	720 KHz
310	30%	470 KHz	775 KHz
"	50%	460 KHz	775 KHz
"	80%	470 KHz	775 KHz
418	30%	530 KHz	1045 KHz
"	50%	530 KHz	1045 KHz
"	80%	560 KHz	1045 KHz

This chart shows a typical measured bandwidth signal.



Restricted Bands: [15.205]

The following frequency bands are restricted. Only spurious emissions are permitted at levels limited by 15.209:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.25
0.490-0.510	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2655-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	Above 38.6
13.36-13.41			

LIMIT @ 3meter: [15.209(a)]

30-88MHz	100uV/m	40dBuV/m
88-216MHz	150uV/m	43.5dBuV/m
216-960MHz	200uV/m	46dBuV/m
above 960MHz	500uV/m	54dBuV/m

Verification of no capability to tune within the Restricted Bands.

The unit is designed capable of tuning from 288MHz to 420MHz except that the Homelink® III firmware prevents the possibility of tuning to the restricted regions of 322-335.4MHz, 399.9-410Mhz, and the region 304-307MHz.

An exercise which attempted to train the units into these restricted bands demonstrated how well the firmware functioned. The unit could not be trained any closer than 1MHz to the restricted bands of 15.205 and no closer than 500KHz outside the band 304-307MHz.

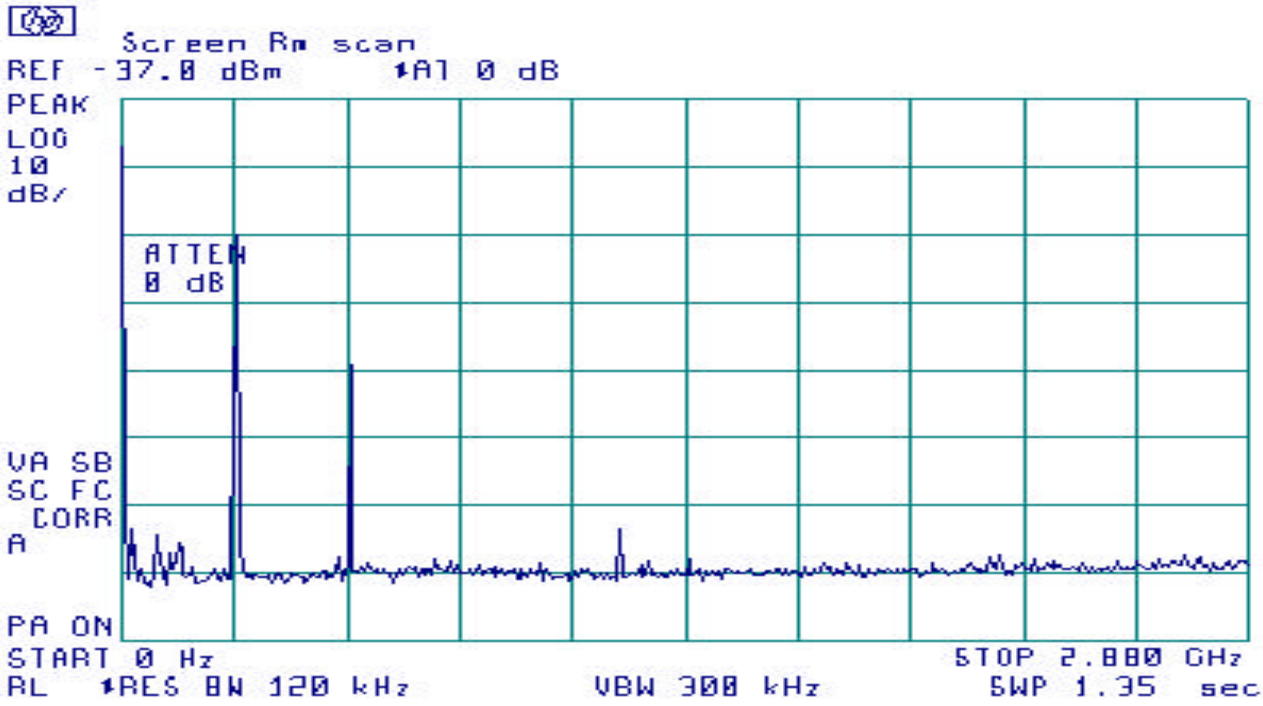
The spurious emissions observed in the restricted bands did not exceed the allowed limits for the restricted bands.

Radiated Field Strength Measurements: [15.231(b), 15.205]

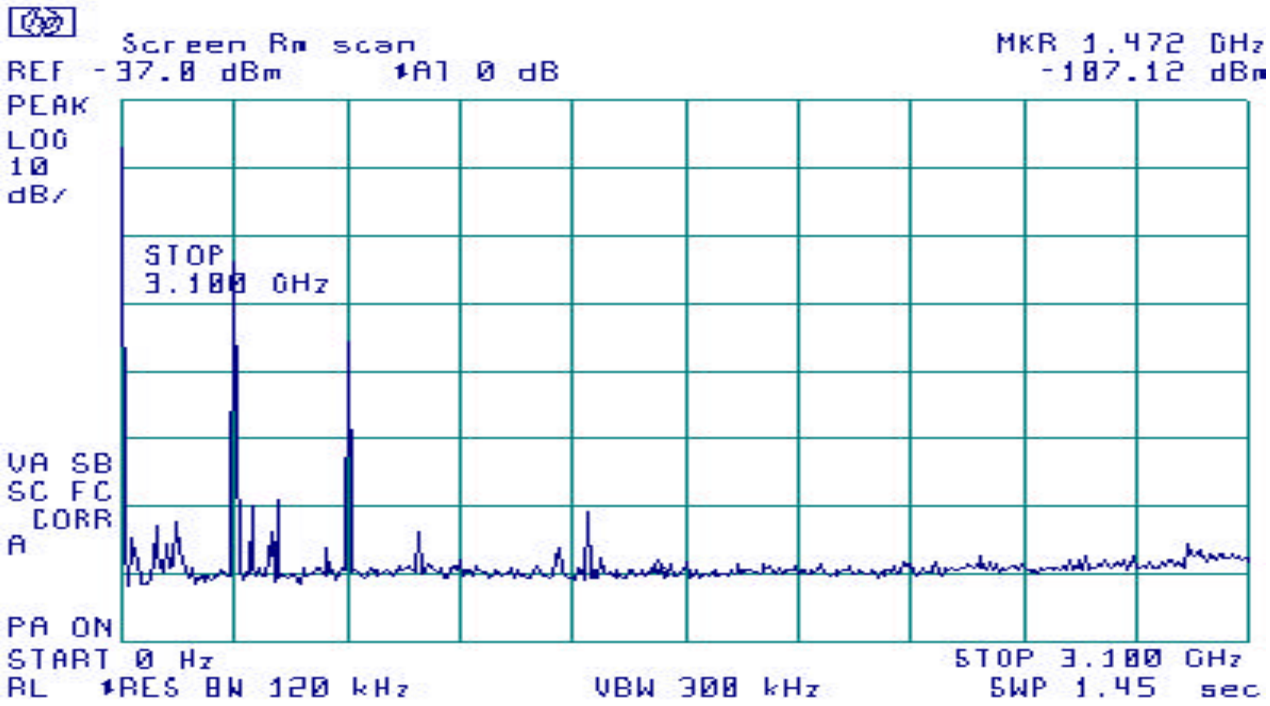
A scan of the NZLSTDHL3 was made in a shielded room to study the emission profile of the EUT. These scans indicate there are low level spurious emissions from the unit other than the fundamental and its associated harmonics.
These suspect signals were then measured at the 3-meter open area test site.

The first series of charts show the spectrum pattern of the EUT emissions. The levels indicated are not calibrated levels. Following the charts is a table of the measured levels at the 3-meter OATS.

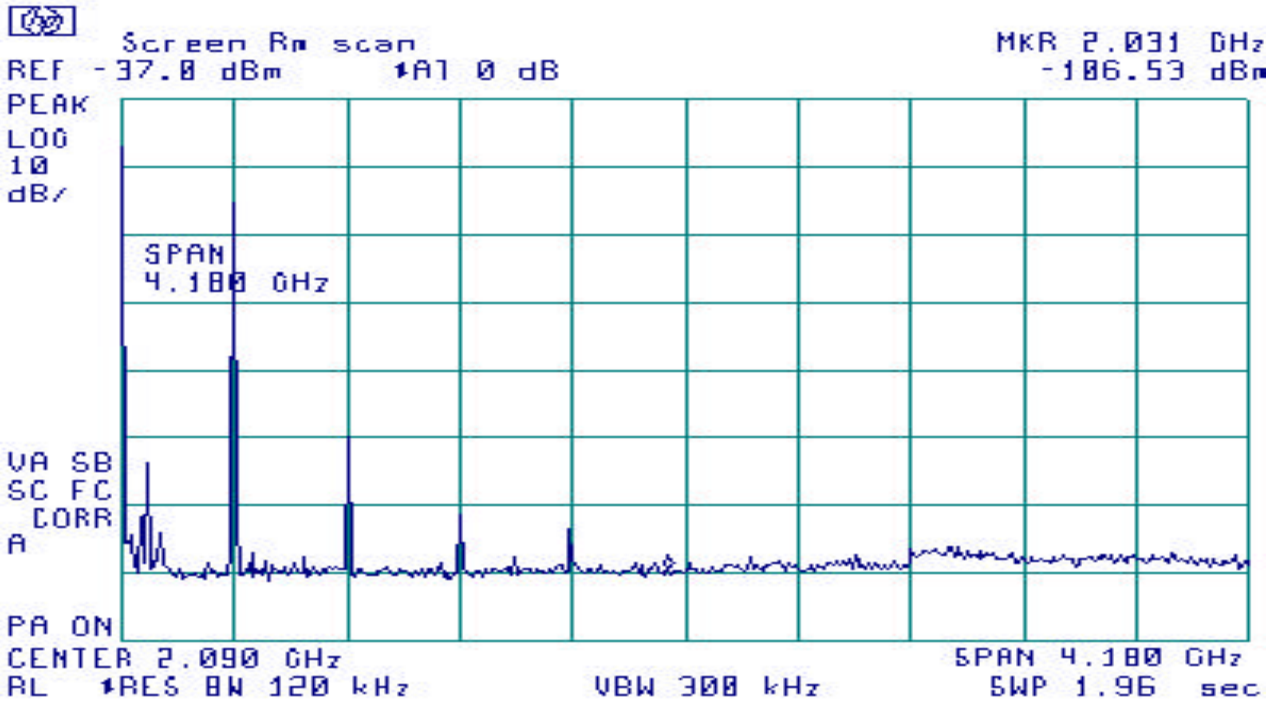
EUT trained to 288MHz operation



EUT trained to 310MHz operation

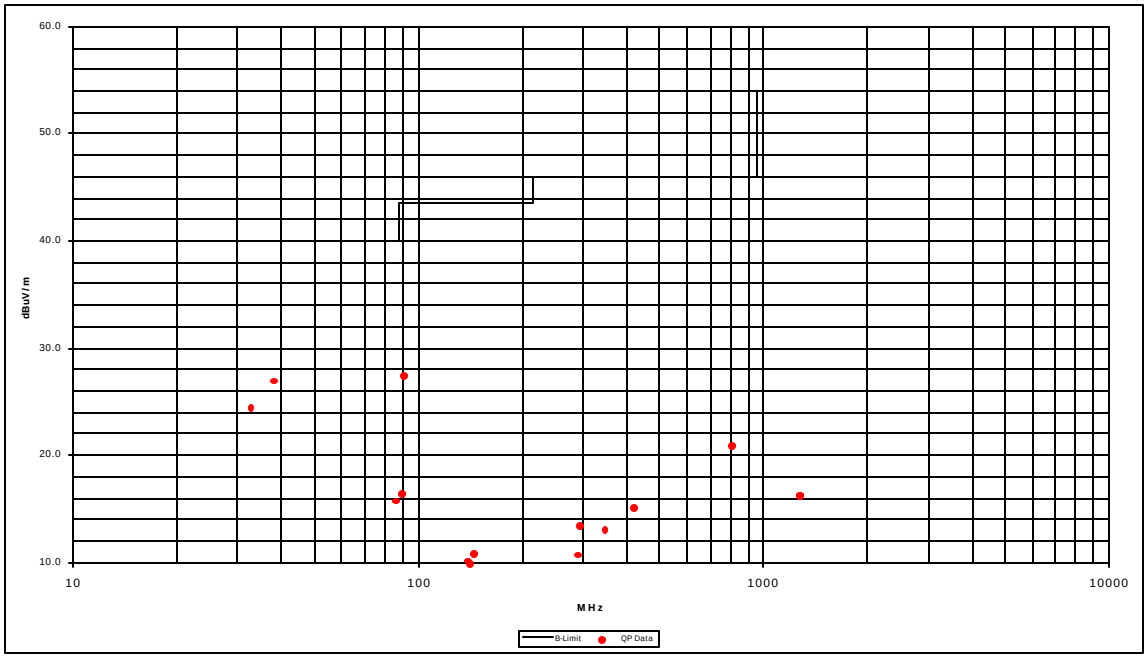


EUT trained to 418MHz operation.



Radiated Field Strength Measurements

Graph of Quasi-Peak Measurements



Tabulated Quasi-Peak Measurements.

Frequency MHz	Polarity	Quasi Peak Measurement dBuV/m	FCC Class B Limit dBuV/m	Margin dB		Included Cable + Antenna Factors dB/m
33.00	V	**24.36	40.00	-15.64		17.73
38.30	V	**26.84	40.00	-13.16		15.46
86.66	V	**15.62	40.00	-24.38		7.86
89.99	V	**16.33	43.50	-27.17		8.21
91.49	H	**27.30	43.50	-16.20		8.36
140.81	V	**10.03	43.50	-33.47		8.75
141.72	V	**9.74	43.50	-33.76		8.81
145.50	V	**10.74	43.50	-32.76		9.05
294.83	V	13.35	46.00	-32.65		14.96
349.03	H	**12.90	46.00	-33.10		16.57
424.48	V	**14.96	46.00	-31.04		18.46
813.81	V	**20.83	46.00	-25.17		24.73

The frequencies for measurements were determined by the suspect list generated from the shielded room prescan.
**These suspect signal levels were measured to be at or below the background noise and ambient.

Field Strength Measurements of Fundamental : [15.231(b)]

MEASUREMENT PROCEDURE:

1. The EUT was trained to one of the three test frequencies.
2. The EUT was trained to one of the three test duty cycles.
3. The EUT was setup to one of the three orthogonal positions.
4. Steps 1-3 were repeated to cover all positions, duty cycles, and frequencies.

DUT Tuned to transmit at 288MHz

Freq. MHz	DUT position	Ant. Pol.	Corrected Data Peak Detector dBuV/m	Duty Cycle %	Duty Cycle Factor dB	Calculated Average Level dBuV/m	FCC Limit dBuV/m	Margin dB	Cable +Ant. Factor dB+dB/m
288	side	H	81.5	30%	-10.46	71.0	73.8	**2.8**	14.7
"	"	"	77.8	50%	-6.02	71.8	73.8	**2.0**	"
"	"	"	72.2	80%	-1.94	70.3	73.8	**3.5**	"

DUT Tuned to transmit at 310MHz

Freq. MHz	DUT position	Ant. Pol.	Corrected Data Peak Detector dBuV/m	Duty Cycle %	Duty Cycle Factor dB	Calculated Average Level dBuV/m	FCC Limit dBuV/m	Margin dB	Cable +Ant. Factor dB+dB/m
310	side	H	83.6	30%	-10.46	73.1	75.3	**2.2**	15.1
"	"	"	79.9	50%	-6.02	73.9	75.3	**1.4**	"
"	"	"	74.2	80%	-1.94	72.3	75.3	**3.0**	"

DUT Tuned to transmit at 418MHz

Freq. MHz	DUT position	Ant. Pol.	Corrected Data Peak Detector dBuV/m	Duty Cycle %	Duty Cycle Factor dB	Calculated Average Level dBuV/m	FCC Limit dBuV/m	Margin dB	Cable +Ant. Factor dB+dB/m
418	end	V	88.6	30%	-10.46	78.1	80.3	**2.2**	18.3
"	-	"	83.4	50%	-6.02	77.4	80.3	**2.9**	"
"	-	"	79.2	80%	-1.94	77.3	80.3	**3.0**	"

Field Strength Measurements of Harmonics: [15.231(b), 15.205]

DUT Tuned to transmit at 288MHz

576	end	H	52.9	30%	-10.46	42.4	53.8	**11.4**	21.4
"	"	"	46.7	50%	-6.02	40.7	53.8	**13.1**	"
"	flat	V	37.3	80%	-1.94	35.4	53.8	**18.4**	"
864	side	H	35.0	30%	-10.46	24.5	53.8	**29.3**	25.3
"	end	"	30.2	50%	-6.02	24.2	53.8	**29.6**	"
"	side	"	26.3	80%	-1.94	24.4	53.8	**29.4**	"
1152	flat	H	38 noise floor	30%	-10.46	<27.5	54.0	**>26.5**	28.7
"	-	"	38 noise floor	50%	-6.02	<32.0	54.0	**>22.0**	"
"	-	"	38 noise floor	80%	-1.94	<36.1	54.0	**>17.9**	"
1440	end	V	40.1	30%	-10.46	29.6	54.0	**24.4**	29.4
"	"	"	38.4	50%	-6.02	32.4	54.0	**21.6**	"
"	"	"	38.3	80%	-1.94	36.4	54.0	**17.6**	"
1728	side	V	38.6	30%	-10.46	28.1	54.0	**25.9**	30.3
"	"	"	38.8	50%	-6.02	32.8	54.0	**21.2**	"
"	"	"	36.8	80%	-1.94	34.9	54.0	**19.1**	"
2016	side	H	40.8	30%	-10.46	30.3	54.0	**23.7**	31.2
"	"	V	39.5	50%	-6.02	33.5	54.0	**20.5**	"
"	"	H	39.1	80%	-1.94	37.2	54.0	**16.8**	"
2304	-	V	41 noise floor	30%	-10.46	<30.5	54.0	**>23.5**	32.3
	-	"	41 noise floor	50%	-6.02	<35.0	54.0	**>19.0**	
"	-	"	41 noise floor	80%	-1.94	<39.1	54.0	**>14.9**	"
2592	-	V	41 noise floor	30%	-10.46	<30.5	54.0	**>23.5**	33.1
"	-	"	41 noise floor	50%	-6.02	<35.0	54.0	**>19.0**	"
"	-	"	41 noise floor	80%	-1.94	<39.1	54.0	**>14.9**	"
2880	-	V	41 noise floor	30%	-10.46	<30.5	54.0	**>23.5**	33.3
"	-	"	41 noise floor	50%	-6.02	<35.0	54.0	**>19.0**	"
"	-	"	41 noise floor	80%	-1.94	<39.1	54.0	**>14.9**	"

DUT Tuned to transmit at 310MHz

Freq. MHz	DUT position	Ant. Pol.	Corrected Data Peak Detector dBuV/m	Duty Cycle %	Duty Cycle Factor dB	Calculated Average Level dBuV/m	FCC Limit dBuV/m	Margin dB	Cable +Ant. Factor dB+dB/m
620	side	H	52.3	30%	-10.46	41.8	55.3	**13.5**	22.1
"	"	V	44.1	50%	-6.02	38.1	55.3	**17.2**	"
"	"	"	35.8	80%	-1.94	33.9	55.3	**21.4**	"
930	end	V	36.3 in ambient	30%	-10.46	<25.8	55.3	**>29.5**	25.8
"	"	"	27.3	50%	-6.02	21.3	55.3	**34.0**	"
"	"	"	27.7	80%	-1.94	25.8	55.3	**29.5**	"
1240	side	V	42.1	30%	-10.46	31.6	54.0	**22.4**	29.0
"	"	"	37.7	50%	-6.02	31.7	54.0	**22.3**	"
"	flat	H	36.8	80%	-1.94	34.9	54.0	**19.1**	"
1550	end	V	42.0	30%	-10.46	31.5	54.0	**22.5**	29.7
"	"	"	41.1	50%	-6.02	35.1	54.0	**18.9**	"
"	"	"	39.2	80%	-1.94	37.3	54.0	**16.7**	"
1860	side	V	39.2	30%	-10.46	28.7	55.3	**26.6**	30.7
"	-	"	39.9	50%	-6.02	33.9	55.3	**21.4**	"
"	-	"	37.3	80%	-1.94	35.4	55.3	**19.9**	"
2170	end	V	40.0	30%	-10.46	29.5	55.3	**25.8**	31.8
"	-	"	39.7	50%	-6.02	33.7	55.3	**21.6**	"
"	-	"	38 noise floor	80%	-1.94	<36.1	55.3	**>19.2**	"
2480	-	V	41 noise floor	30%	-10.46	<30.5	55.3	**>24.8**	32.9
	-		41 noise floor	50%	-6.02	<35.0	55.3	**>20.3**	
"	-	"	41 noise floor	80%	-1.94	<39.0	55.3	**>16.3**	"
2790	-	V	41 noise floor	30%	-10.46	<31.5	54.0	**>22.5**	33.2
"	-	"	41 noise floor	50%	-6.02	<36.0	54.0	**>18.0**	"
"	-	"	41 noise floor	80%	-1.94	<40.0	54.0	**>14.0**	"
3100	-	V	41 noise floor	30%	-10.46	<31.5	54.0	**>22.5**	33.7
"	-	"	41 noise floor	50%	-6.02	<36.0	54.0	**>18.0**	"
"	-	"	41 noise floor	80%	-1.94	<40.0	54.0	**>14.0**	"

DUT Tuned to transmit at 418MHz

Freq. MHz	DUT position	Ant. Pol.	Corrected Data Peak Detector dBuV/m	Duty Cycle %	Duty Cycle Factor dB	Calculated Average Level dBuV/m	FCC Limit dBuV/m	Margin dB	Cable +Ant. Factor dB+dB/m
836	end	V	49.4	30%	-10.46	38.9	60.3	**21.4**	25.0
"	flat	"	41.8	50%	-6.02	35.8	60.3	**24.5**	"
"	end	H	38.4	80%	-1.94	36.5	60.3	**23.8**	"
1254	side	V	45.2	30%	-10.46	34.7	54.0	**19.3**	29.0
"	"	"	43.6	50%	-6.02	37.6	54.0	**16.4**	"
"	"	"	42.2	80%	-1.94	40.3	54.0	**13.7**	"
1672	side	V	45.8	30%	-10.46	35.3	54.0	**18.7**	30.1
"	"	"	42.3	50%	-6.02	36.3	54.0	**17.7**	"
"	side	H	41.1	80%	-1.94	39.2	54.0	**14.8**	"
2090	side	H	42.4	30%	-10.46	31.9	60.3	**28.4**	31.5
"	end	"	41.4	50%	-6.02	35.4	60.3	**24.9**	"
"	"	"	41.2	80%	-1.94	39.3	60.3	**21.0**	"
2508	side	V	41.3	30%	-10.46	30.8	60.3	**29.5**	33.0
"	-	"	40 noise floor	50%	-6.02	<34.0	60.3	**>26.3**	"
"	-	"	40 noise floor	80%	-1.94	<38.1	60.3	**>22.2**	"
2926	-	V	41 noise floor	30%	-10.46	<30.5	60.3	**>29.8**	33.3
"	-	"	41 noise floor	50%	-6.02	<35.0	60.3	**>25.3**	"
"	-	"	41 noise floor	80%	-1.94	<39.1	60.3	**>21.2**	"
3344	-	V	41 noise floor	30%	-10.46	<30.5	60.3	**>29.8**	34.4
	-		41 noise floor	50%	-6.02	<35.0	60.3	**>25.3**	
"	-	"	41 noise floor	80%	-1.94	<39.1	60.3	**>21.2**	"
3762	-	V	42 noise floor	30%	-10.46	<31.5	54.0	**>22.5**	34.8
"	-	"	42 noise floor	50%	-6.02	<36.0	54.0	**>18.0**	"
"	-	"	42 noise floor	80%	-1.94	<40.1	54.0	**>13.9**	"
4180	-	V	42 noise floor	30%	-10.46	<31.5	54.0	**>22.5**	35.0
"	-	"	42 noise floor	50%	-6.02	<36.0	54.0	**>18.0**	"
"	-	"	42 noise floor	80%	-1.94	<40.1	54.0	**>13.9**	"

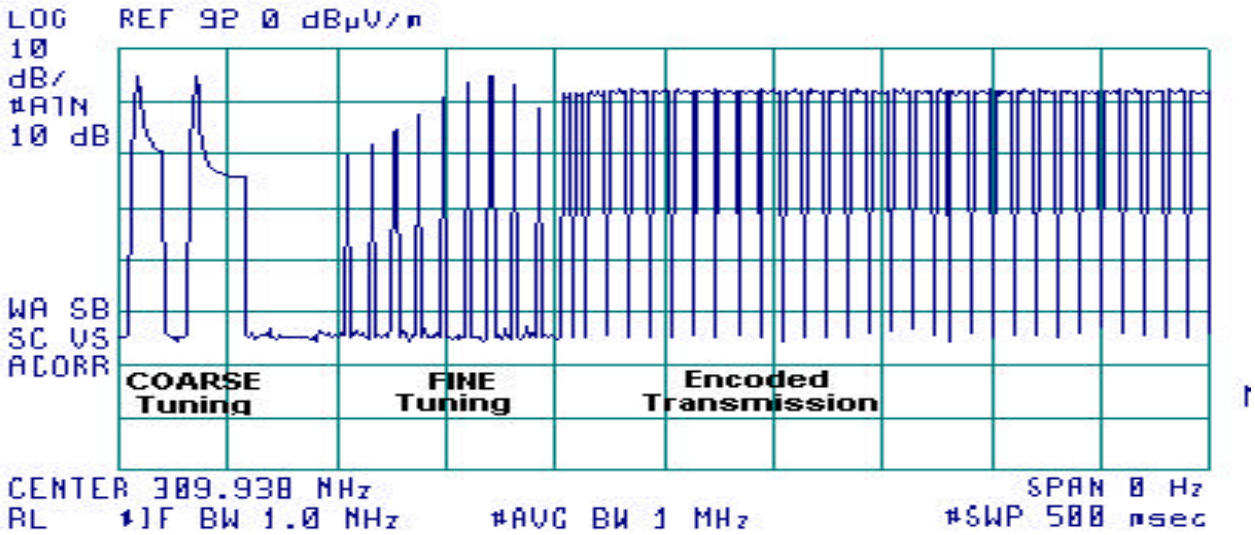
Calculation of Field Strength of Tuning Pulses: [15.231(b)], 15.31(c)]

The tuning pulses are generated each time the NZLSTDHL3 is activated.

The tuning pulse sequence is: During the first 100mSec of activation two pulses of a 'coarse' tune. During the second 100mSec of activation are nine pulses of a 'fine' tune. At approximately 200mSec after activation the encoded transmission begins.

The signal levels of the tuning pulses were maximized by maximizing the signal levels of the pulse modulated transmission. The antenna height and turntable azimuth for maximum emission levels were adjusted while measuring the field strength of the pulse modulated transmissions.

A typical tuning pulse sequence is presented in this figure below.



To determine level of the tuning pulses for comparison to the limits, the following procedure was used.

MEASUREMENT PROCEDURE:

1. The EUT was trained to each of the three test frequencies at 30% duty cycle of the 500Hz modulating pulse.
2. The HP8456A EMI Receiver was adjusted to a fundamental frequency and set at 0Hz span, with 1MHz IF Bandwidth.
3. The trigger level was adjusted to capture the pulses of interest.
4. The EUT was activated and a single trace recorded on the Receiver in order to capture the tuning pulses.
5. The captured trace was digitally stored. The stored data points (400 data points for a full screen trace) were then used in calculations to determine the levels of the pulses.

CALCULATION OF THE FIELD STRENGTH OF THE TUNING PULSES.[15.35(c)]

Pursuant to 47 CFR 15.35(c), the field strength is determined by averaging over ONE complete pulse train up to 100mSec, including blanking intervals.

1. First was determined the number of data points captured which represented 100mSec span of time. There are 400 data points stored for one complete trace. The scan rate of the HP8546A receiver was set to capture the tuning pulses.

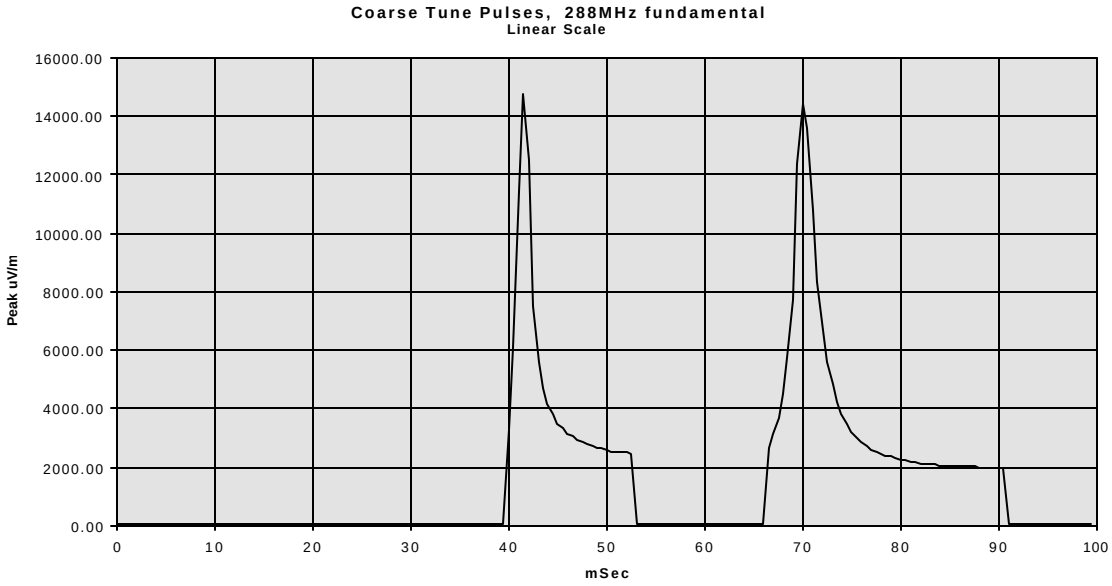
   Therefore: Number of data points per 100mSec
   = 100mSec * (400pts/scan) / (No. of mSec/scan).
   Example: If the scan rate is set at 200mSec, then the number of data points per 100mSec is 100mSec * (400pts / 200mSec) = 200 pts.

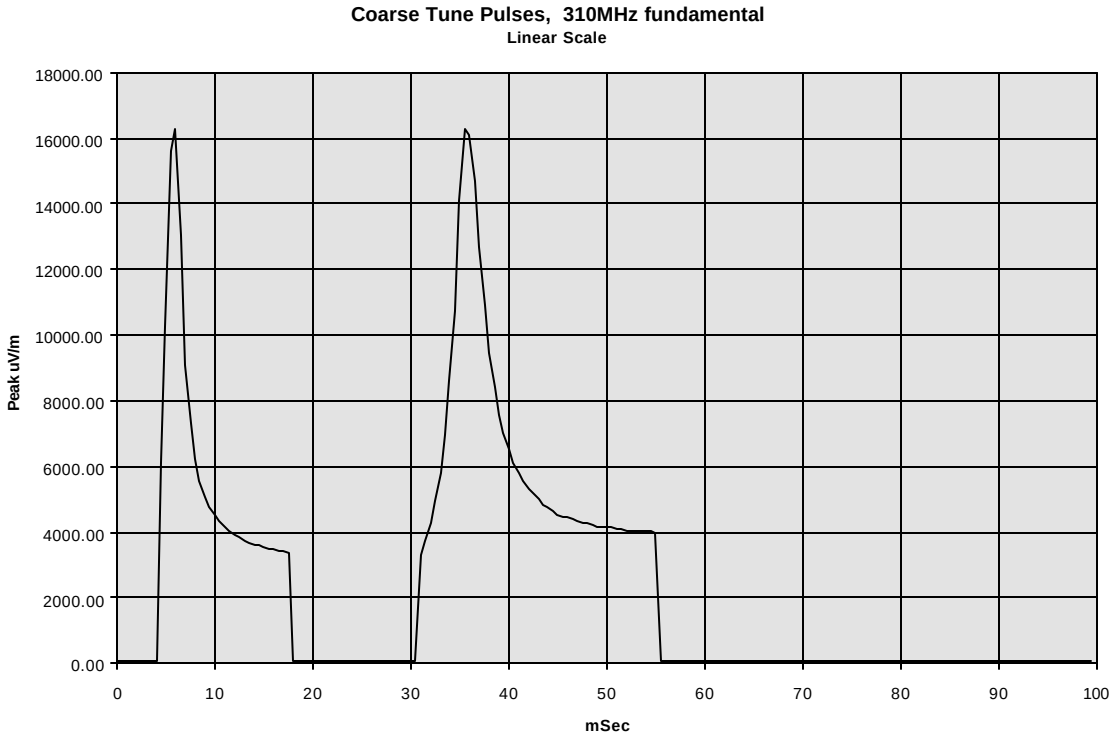
2. The AVERAGE field strength level (uV/m) within the 100mSec is then determined by dividing SUM of the levels (uV/m) of all data points by the number of data points.

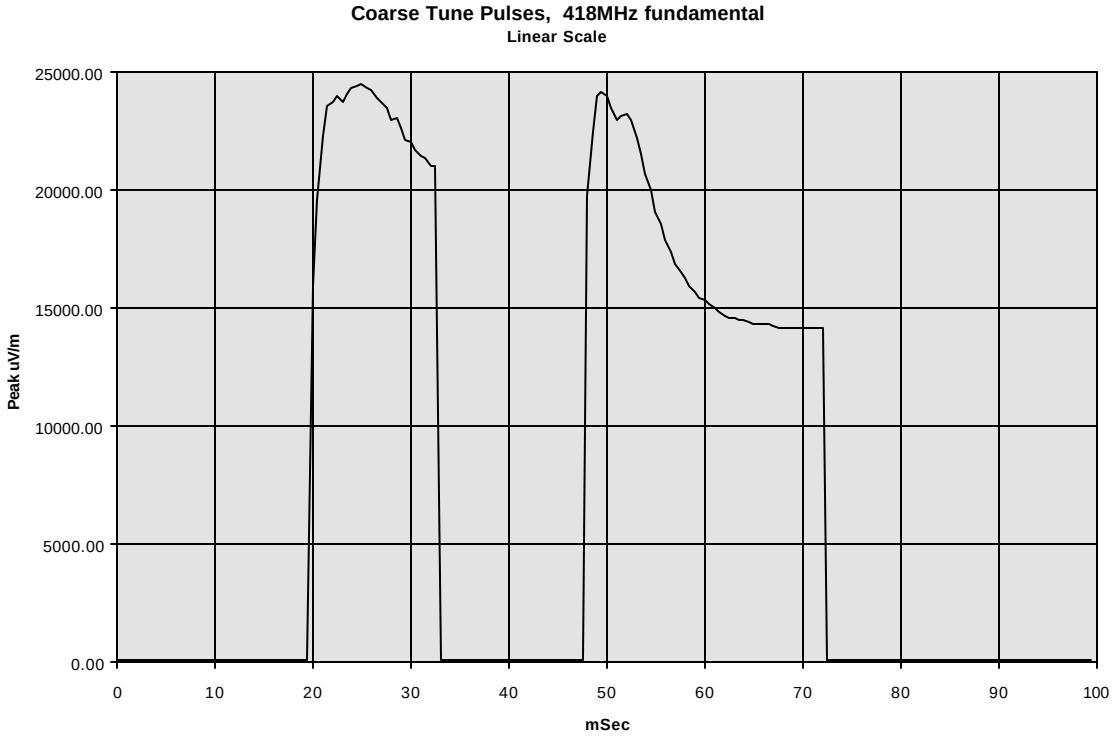
   Formula 3: Average Field Intensity

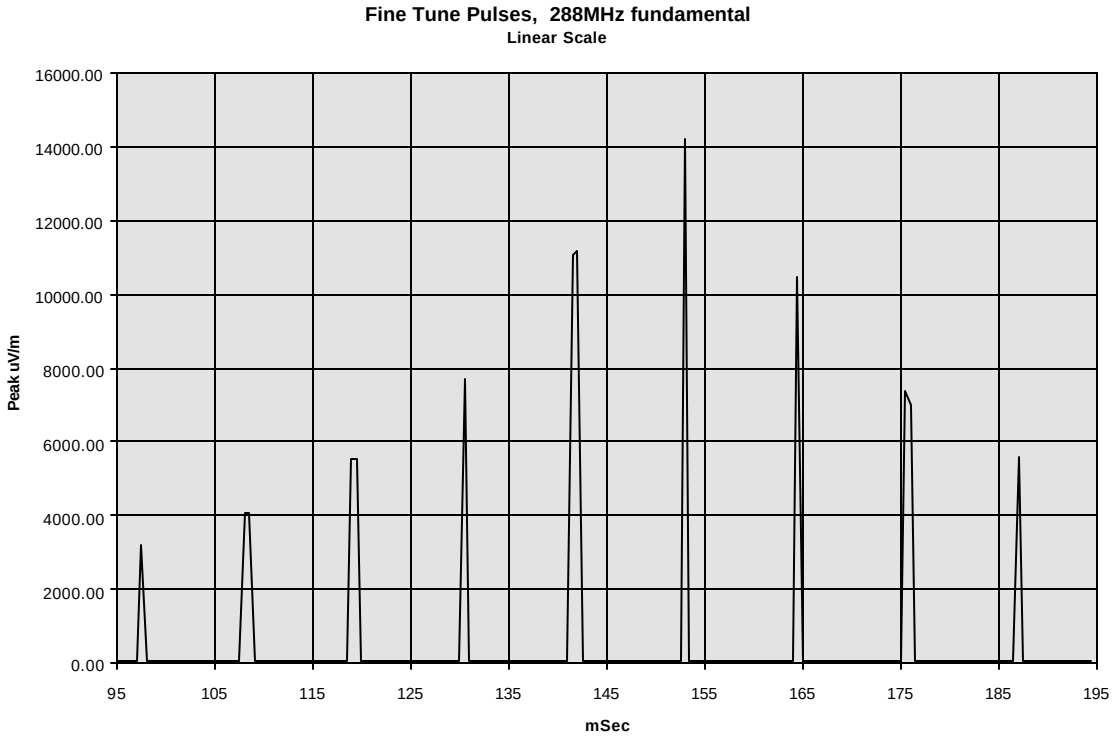
$$\text{Avg. F.I.} = \frac{\sum_{n=1}^{\text{no. of data pts}} (\text{Level}_n)\text{uV/m}}{\text{(number of data points)}}$$

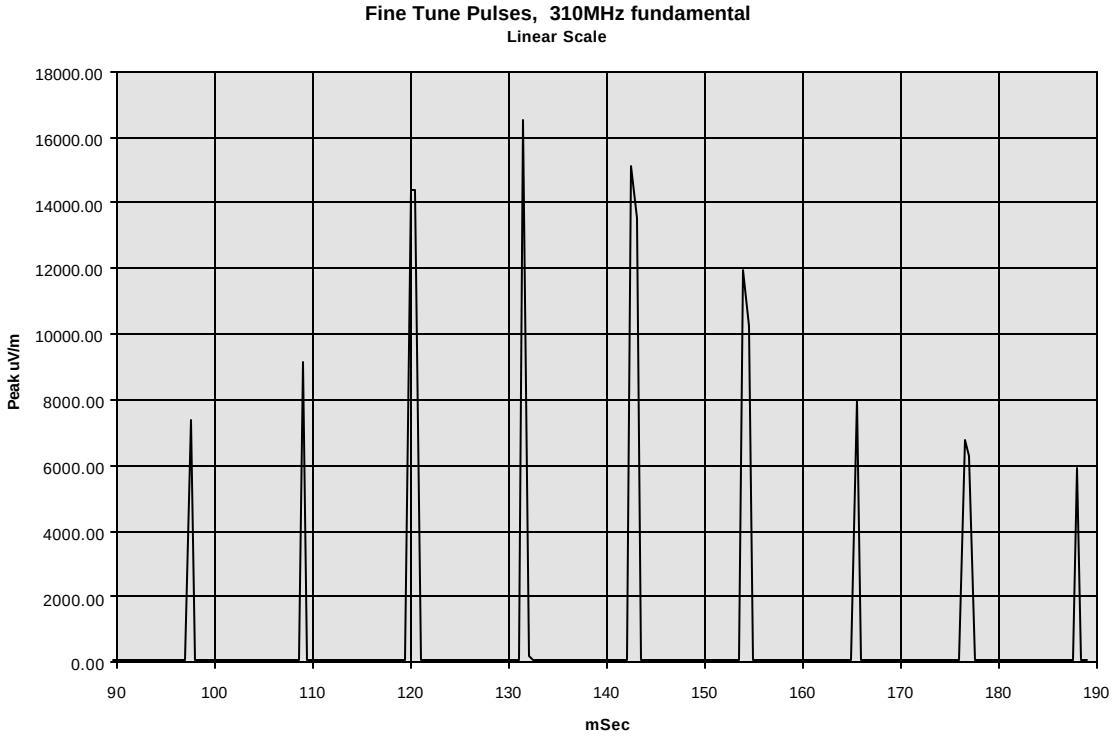
The charts that follow are the reproduction of the coarse tune pulse traces using number of data points representing 100mSec sweep time from the screen display of the HP8546A EMI receiver.

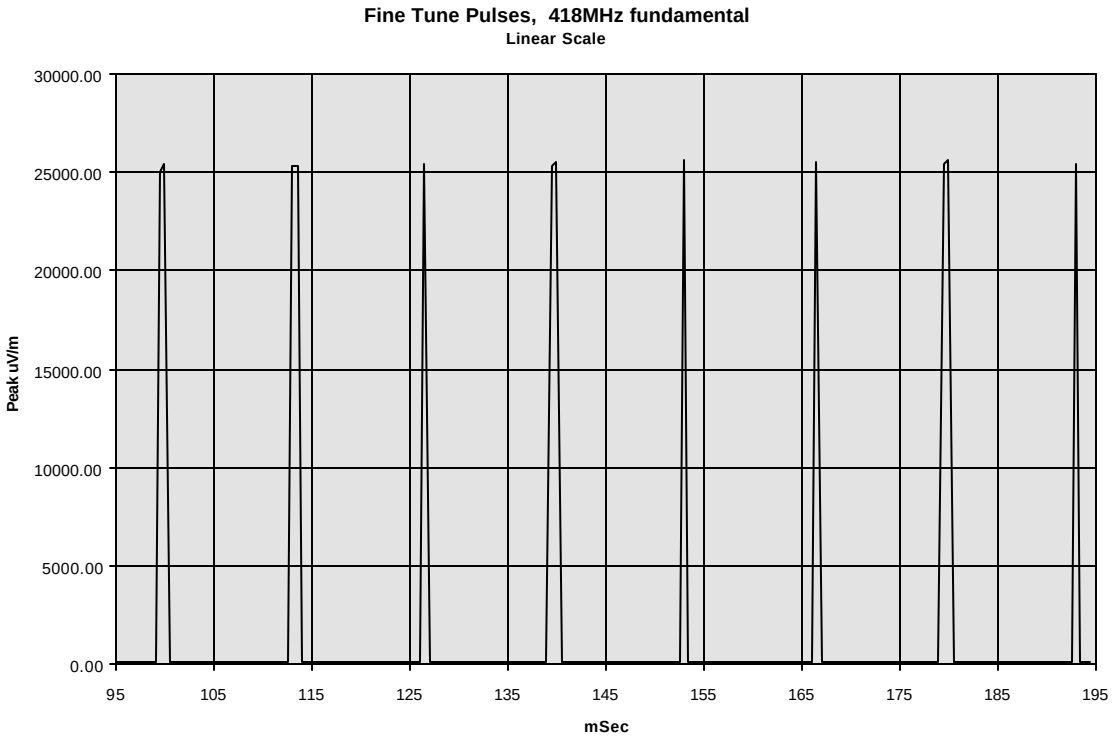



Coarse Tune Pulses, 310MHz fundamental
Linear Scale
Peak uV/m
18000.00
16000.00
14000.00
12000.00
10000.00
8000.00
6000.00
4000.00
2000.00
0.00
0
10
20
30
40
50
60
70
80
90
100
mSec


Coarse Tune Pulses, 418MHz fundamental
Linear Scale
Peak uV/m
25000.00
20000.00
15000.00
10000.00
5000.00
0.00
0
10
20
30
40
50
60
70
80
90
100
mSec


Fine Tune Pulses, 288MHz fundamental
Linear Scale
Peak uV/m
16000.00
14000.00
12000.00
10000.00
8000.00
6000.00
4000.00
2000.00
0.00
95
105
115
125
135
145
155
165
175
185
195
mSec


Fine Tune Pulses, 310MHz fundamental
Linear Scale
Peak uV/m
18000.00
16000.00
14000.00
12000.00
10000.00
8000.00
6000.00
4000.00
2000.00
0.00
90
100
110
120
130
140
150
160
170
180
190
mSec



The raw data used in calculating the average field intensity of the tuning pulses are presented in the Appendix of this test report.

COARSE TUNE PULSES, Calculated average over 100mSec

TX Freq. (MHz)	SUM of the levels of all data points in 100mSec span (uV/m)	Number of Data points in 100mSec span N	Average SUM/N (uV/m)	LIMIT (uV/m)	MARGIN (dB)
288	315,407	200	1577	4917	**9.9**
310	475,993	200	2380	5833	**7.8**
418	1,446,565	200	7233	10333	**3.1**

FINE TUNE PULSES, Calculated average over 100mSec

TX Freq. (MHz)	SUM of the levels of all data points in 100mSec span (uV/m)	Number of Data points in 100mSec span N	Average SUM/N (uV/m)	LIMIT (uV/m)	MARGIN (dB)
288	109,955	200	550	4917	**19.0**
310	154,083	200	770	5833	**17.6**
418	325,364	200	1627	10333	**16.1**

APPENDIX: Tune Pulses - Data Details

COARSE TUNE Pulse; Fundamental Frequency = 288MHz

	mSec	Level uV/m	mSec	Level uV/m	mSec	Level uV/m	mSec	Level uV/m
1	0	67.07	25	66.91	50	2615.17	75	3224.78
2	0.5	65.09	25.5	62.09	50.5	2561.53	75.5	3009.54
3	1	63.24	26	71.53	51	2561.53	76	2857.59
4	1.5	74.47	26.5	68.55	51.5	2520.58	76.5	2722.70
5	2	70.55	27	60.60	52	2491.72	77	2624.22
6	2.5	67.45	27.5	63.90	52.5	2471.72	77.5	2526.39
7	3	68.16	28	73.88	53	70.71	78	2471.72
8	3.5	66.37	28.5	77.54	53.5	63.02	78.5	2415.46
9	4	72.86	29	64.94	54	68.55	79	2357.76
10	4.5	69.26	29.5	73.62	54.5	70.71	79.5	2293.51
11	5	96.27	30	67.61	55	82.51	80	2282.97
12	5.5	75.25	30.5	68.16	55.5	72.69	80.5	2228.44
13	6	70.96	31	66.53	56	62.09	81	2175.20
14	6.5	72.69	31.5	66.68	56.5	62.09	81.5	2167.70
15	7	73.45	32	75.25	57	63.90	82	2140.42
16	7.5	67.22	32.5	72.69	57.5	65.09	82.5	2133.04
17	8	66.15	33	64.57	58	74.64	83	2123.24
18	8.5	63.39	33.5	64.27	58.5	76.65	83.5	2106.20
19	9	71.86	34	80.54	59	67.61	84	2072.53
20	9.5	70.39	34.5	71.29	59.5	67.22	84.5	2060.63
21	10	70.15	35	61.87	60	61.87	85	2039.39
22	10.5	62.23	35.5	72.11	60.5	64.79	85.5	2055.89
23	11	69.98	36	78.52	61	75.42	86	2048.80
24	11.5	67.45	36.5	61.24	61.5	66.15	86.5	2055.89
25	12	73.62	37	79.25	62	71.86	87	2016.04
26	12.5	64.57	37.5	65.46	62.5	65.99	87.5	2048.80
27	13	73.03	38	71.70	63	76.03	88	1999.86
28	13.5	77.54	38.5	63.90	63.5	65.46	88.5	1999.86
29	14	69.66	39	69.66	64	65.46	89	1986.09
30	14.5	76.30	39.5	67.07	64.5	68.00	89.5	1999.86
31	15	68.31	40	3262.12	65	85.41	90	2011.41
32	15.5	75.25	40.5	6074.35	65.5	63.24	90.5	1954.34
33	16	64.94	41	11389.38	66	63.53	91	68.00
34	16.5	70.39	41.5	14791.08	66.5	2688.44	91.5	71.70
35	17	71.70	42	12502.59	67	3133.29	92	75.86
36	17.5	69.10	42.5	7507.58	67.5	3719.63	92.5	62.09
37	18	69.42	43	5604.02	68	4523.76	93	65.46
38	18.5	66.91	43.5	4747.88	68.5	5721.37	93.5	68.16
39	19	59.77	44	4159.11	69	7753.54	94	76.03
40	19.5	75.08	44.5	3793.15	69.5	12345.25	94.5	83.18
41	20	74.05	45	3511.56	70	14421.15	95	72.69
42	20.5	73.88	45.5	3322.77	70.5	13630.13	95.5	57.08
43	21	68.31	46	3147.75	71	10789.47	96	65.31
44	21.5	73.03	46.5	3058.44	71.5	8365.66	96.5	69.26
45	22	61.87	47	2947.81	72	6691.14	97	62.23
46	22.5	73.03	47.5	2851.02	72.5	5584.70	97.5	82.99
47	23	69.66	48	2789.33	73	4836.15	98	63.39
48	23.5	67.61	48.5	2722.70	73.5	4265.80	98.5	60.74
49	24	64.27	49	2679.17	74	3832.66	99	73.03
50	24.5	81.66	49.5	2636.33	74.5	3475.36	99.5	74.47

COARSE TUNE Pulse; Fundamental Frequency = 310MHz

	mSec	Level uV/m	mSec	Level uV/m	mSec	Level uV/m	mSec	Level uV/m
1	0	81.94	25	80.63	50	4144.77	75	75.86
2	0.5	66.76	25.5	77.45	50.5	4144.77	75.5	71.37
3	1	72.11	26	71.53	51	4111.50	76	73.11
4	1.5	72.11	26.5	75.68	51.5	4087.90	76.5	72.95
5	2	70.63	27	69.82	52	4064.43	77	77.80
6	2.5	78.70	27.5	68.16	52.5	4064.43	77.5	72.11
7	3	72.95	28	77.18	53	4041.10	78	80.35
8	3.5	73.54	28.5	75.86	53.5	4041.10	78.5	97.95
9	4	68.16	29	76.82	54	4041.10	79	79.98
10	4.5	6109.42	29.5	75.08	54.5	4017.91	79.5	72.69
11	5	10232.93	30	76.12	55	3985.66	80	82.13
12	5.5	15613.49	30.5	77.00	55.5	75.51	80.5	70.96
13	6	16255.49	31	3296.10	56	71.37	81	69.50
14	6.5	13031.67	31.5	3715.35	56.5	67.30	81.5	84.63
15	7	9099.13	32	4275.63	57	68.16	82	63.46
16	7.5	7294.58	32.5	4931.74	57.5	78.43	82.5	71.37
17	8	6223.00	33	5787.62	58	77.80	83	70.06
18	8.5	5533.50	33.5	6934.26	58.5	80.63	83.5	69.10
19	9	5075.75	34	8619.86	59	72.95	84	81.94
20	9.5	4758.83	34.5	10739.89	59.5	72.36	84.5	75.68
21	10	4513.36	35	14092.89	60	77.00	85	75.68
22	10.5	4310.23	35.5	16255.49	60.5	68.55	85.5	78.07
23	11	4163.90	36	16125.01	61	90.78	86	85.51
24	11.5	4017.91	36.5	14706.18	61.5	70.96	86.5	76.56
25	12	3912.91	37	12691.12	62	76.12	87	73.71
26	12.5	3837.07	37.5	10889.30	62.5	77.62	87.5	67.14
27	13	3741.11	38	9440.61	63	72.11	88	68.55
28	13.5	3694.03	38.5	8413.95	63.5	80.17	88.5	76.56
29	14	3626.60	39	7577.05	64	67.45	89	70.39
30	14.5	3585.09	39.5	6990.37	64.5	85.51	89.5	81.66
31	15	3556.31	40	6523.79	65	69.10	90	74.47
32	15.5	3479.37	40.5	6123.50	65.5	66.91	90.5	77.00
33	16	3467.37	41	5787.62	66	88.00	91	78.43
34	16.5	3423.73	41.5	5559.04	66.5	74.73	91.5	71.37
35	17	3411.93	42	5327.21	67	72.95	92	74.47
36	17.5	3368.99	42.5	5176.07	67.5	72.53	92.5	67.30
37	18	81.94	43	4983.10	68	69.26	93	74.90
38	18.5	77.45	43.5	4852.89	68.5	70.39	93.5	77.18
39	19	86.90	44	4747.88	69	72.95	94	73.88
40	19.5	75.08	44.5	4634.47	69.5	74.90	94.5	72.53
41	20	71.78	45	4549.88	70	71.20	95	80.17
42	20.5	77.62	45.5	4477.13	70.5	67.61	95.5	84.33
43	21	98.74	46	4441.20	71	70.79	96	70.06
44	21.5	74.13	46.5	4380.26	71.5	71.53	96.5	69.82
45	22	77.18	47	4360.14	72	80.82	97	77.62
46	22.5	82.13	47.5	4300.31	72.5	82.13	97.5	65.69
47	23	77.00	48	4265.80	73	74.47	98	69.10
48	23.5	86.90	48.5	4241.31	73.5	72.36	98.5	73.11
49	24	85.02	49	4178.30	74	83.27	99	68.16
50	24.5	76.12	49.5	4178.30	74.5	84.82	99.5	66.07

COARSE TUNE Pulse; Fundamental Frequency = 418MHz

	mSec	Level uV/m	mSec	Level uV/m	mSec	Level uV/m	mSec	Level uV/m
1	0	109.14	25	24490.63	50	23933.16	75	115.88
2	0.5	110.92	25.5	24322.04	50.5	23496.33	75.5	114.95
3	1	104.59	26	24210.29	51	22987.94	76	101.86
4	1.5	103.04	26.5	23878.11	51.5	23120.65	76.5	107.65
5	2	110.28	27	23686.45	52	23173.95	77	123.74
6	2.5	99.77	27.5	23442.29	52.5	22987.94	77.5	129.57
7	3	118.03	28	22935.07	53	22181.96	78	103.04
8	3.5	107.03	28.5	23067.47	53.5	21478.30	78.5	115.61
9	4	94.95	29	22594.36	54	20630.04	79	95.72
10	4.5	96.16	29.5	22130.95	54.5	19975.61	79.5	101.39
11	5	108.77	30	22003.92	55	19076.56	80	108.27
12	5.5	130.92	30.5	21652.10	55.5	18513.99	80.5	104.11
13	6	138.36	31	21428.91	56	17885.46	81	112.07
14	6.5	123.74	31.5	21305.91	56.5	17378.01	81.5	104.35
15	7	122.32	32	21037.78	57	16865.53	82	100.00
16	7.5	113.24	32.5	21037.78	57.5	16481.62	82.5	118.03
17	8	119.95	33	112.33	58	16218.10	83	106.29
18	8.5	106.54	33.5	112.98	58.5	15885.47	83.5	106.54
19	9	114.55	34	118.44	59	15667.51	84	112.07
20	9.5	101.39	34.5	103.75	59.5	15417.00	84.5	94.19
21	10	97.27	35	110.92	60	15293.26	85	113.63
22	10.5	127.20	35.5	113.24	60.5	15205.48	85.5	113.63
23	11	111.43	36	105.80	61	14962.36	86	104.59
24	11.5	118.99	36.5	113.63	61.5	14842.26	86.5	95.39
25	12	96.49	37	107.03	62	14689.26	87	102.68
26	12.5	103.28	37.5	104.95	62.5	14571.36	87.5	105.80
27	13	118.03	38	105.80	63	14571.36	88	108.27
28	13.5	116.14	38.5	109.65	63.5	14487.72	88.5	143.38
29	14	119.67	39	115.35	64	14454.40	89	107.65
30	14.5	116.55	39.5	104.59	64.5	14404.56	89.5	113.89
31	15	99.77	40	106.29	65	14288.94	90	106.54
32	15.5	116.14	40.5	108.52	65.5	14288.94	90.5	126.47
33	16	122.60	41	118.03	66	14338.38	91	104.35
34	16.5	102.45	41.5	107.40	66.5	14288.94	91.5	95.39
35	17	103.28	42	119.67	67	14256.08	92	104.95
36	17.5	98.29	42.5	104.95	67.5	14174.25	92.5	109.65
37	18	100.23	43	110.92	68	14174.25	93	101.62
38	18.5	104.95	43.5	115.88	68.5	14141.65	93.5	109.40
39	19	113.63	44	106.05	69	14174.25	94	100.23
40	19.5	125.17	44.5	125.75	69.5	14141.65	94.5	132.89
41	20	15958.79	45	115.88	70	14174.25	95	102.21
42	20.5	19565.91	45.5	101.04	70.5	14141.65	95.5	105.20
43	21	22258.71	46	103.28	71	14141.65	96	120.92
44	21.5	23550.49	46.5	110.54	71.5	14141.65	96.5	99.20
45	22	23741.05	47	106.05	72	14141.65	97	104.35
46	22.5	23933.16	47.5	112.33	72.5	113.24	97.5	118.99
47	23	23741.05	48	19769.70	73	119.40	98	118.03
48	23.5	24071.33	48.5	22413.00	73.5	103.04	98.5	94.62
49	24	24266.10	49	23933.16	74	111.17	99	106.54
50	24.5	24406.19	49.5	24126.82	74.5	115.88	99.5	94.95

FINE TUNE Pulses; Fundamental Frequency = 288MHz

	mSec	Level uV/m	mSec	Level uV/m	mSec	Level uV/m	mSec	Level uV/m
1	95	64.79	120	64.94	145	70.55	170	70.55
2	95.5	78.34	120.5	71.70	145.5	72.28	170.5	66.53
3	96	71.12	121	66.53	146	68.16	171	77.09
4	96.5	66.68	121.5	65.09	146.5	71.86	171.5	75.42
5	97	77.89	122	67.07	147	74.82	172	67.61
6	97.5	3198.90	122.5	73.62	147.5	74.22	172.5	67.61
7	98	71.70	123	71.53	148	62.09	173	72.44
8	98.5	72.11	123.5	63.39	148.5	68.00	173.5	62.52
9	99	61.87	124	72.28	149	76.03	174	68.55
10	99.5	65.84	124.5	72.11	149.5	73.28	174.5	64.27
11	100	75.68	125	66.15	150	60.88	175	64.79
12	100.5	76.47	125.5	62.23	150.5	75.25	175.5	7370.55
13	101	70.39	126	62.52	151	78.98	176	7006.48
14	101.5	65.09	126.5	72.44	151.5	66.68	176.5	62.88
15	102	66.53	127	70.55	152	68.55	177	64.42
16	102.5	63.53	127.5	58.68	152.5	65.46	177.5	56.95
17	103	64.42	128	70.39	153	14190.58	178	66.53
18	103.5	71.53	128.5	74.05	153.5	69.66	178.5	70.71
19	104	70.55	129	70.71	154	62.23	179	67.22
20	104.5	68.55	129.5	79.25	154.5	66.15	179.5	63.53
21	105	71.70	130	67.22	155	69.66	180	69.42
22	105.5	68.16	130.5	7717.92	155.5	77.71	180.5	68.31
23	106	66.91	131	63.90	156	77.71	181	66.68
24	106.5	69.66	131.5	69.10	156.5	66.91	181.5	70.39
25	107	63.39	132	65.46	157	76.65	182	62.37
26	107.5	69.10	132.5	67.45	157.5	65.31	182.5	59.29
27	108	4092.61	133	71.86	158	68.87	183	61.73
28	108.5	4102.04	133.5	72.69	158.5	64.42	183.5	64.94
29	109	64.79	134	78.16	159	63.53	184	63.02
30	109.5	65.84	134.5	70.15	159.5	78.70	184.5	64.27
31	110	68.87	135	70.96	160	65.09	185	68.87
32	110.5	67.07	135.5	72.86	160.5	74.47	185.5	61.59
33	111	64.27	136	85.90	161	81.19	186	73.88
34	111.5	72.69	136.5	63.24	161.5	68.31	186.5	66.91
35	112	67.45	137	73.03	162	70.96	187	5604.02
36	112.5	67.45	137.5	61.87	162.5	66.53	187.5	68.31
37	113	75.86	138	63.39	163	62.73	188	60.88
38	113.5	86.40	138.5	68.55	163.5	69.42	188.5	68.55
39	114	66.53	139	71.29	164	72.86	189	74.82
40	114.5	68.71	139.5	59.16	164.5	10447.20	189.5	69.42
41	115	65.46	140	68.31	165	66.91	190	65.61
42	115.5	74.47	140.5	76.47	165.5	68.31	190.5	64.57
43	116	64.57	141	64.27	166	69.10	191	73.28
44	116.5	77.09	141.5	11053.50	166.5	75.86	191.5	66.15
45	117	66.37	142	11168.63	167	69.82	192	63.24
46	117.5	73.62	142.5	65.31	167.5	72.44	192.5	67.07
47	118	63.24	143	67.07	168	66.37	193	79.71
48	118.5	68.55	143.5	65.46	168.5	68.16	193.5	69.26
49	119	5559.04	144	70.15	169	69.42	194	76.47
50	119.5	5539.88	144.5	83.85	169.5	68.00	194.5	70.71

FINE TUNE Pulses; Fundamental Frequency = 310MHz

	mSec	Level uV/m	mSec	Level uV/m	mSec	Level uV/m	mSec	Level uV/m
1	89.5	75.08	114.5	71.53	139.5	72.69	164.5	81.94
2	90	81.00	115	68.94	140	75.08	165	73.11
3	90.5	72.95	115.5	77.62	140.5	70.63	165.5	7979.95
4	91	74.47	116	77.45	141	79.52	166	76.56
5	91.5	75.68	116.5	72.36	141.5	73.11	166.5	89.33
6	92	65.31	117	80.17	142	82.13	167	76.82
7	92.5	71.53	117.5	68.00	142.5	15118.20	167.5	73.11
8	93	77.18	118	68.94	143	13567.51	168	69.66
9	93.5	70.23	118.5	72.11	143.5	75.34	168.5	76.56
10	94	77.80	119	76.56	144	71.94	169	67.45
11	94.5	78.70	119.5	74.90	144.5	74.30	169.5	72.11
12	95	72.11	120	14371.43	145	74.90	170	74.47
13	95.5	68.00	120.5	14404.56	145.5	74.30	170.5	80.63
14	96	72.95	121	73.54	146	81.47	171	77.18
15	96.5	70.39	121.5	74.30	146.5	78.43	171.5	70.06
16	97	66.22	122	81.47	147	85.51	172	76.38
17	97.5	7379.04	122.5	81.00	147.5	80.63	172.5	70.06
18	98	81.00	123	67.14	148	78.89	173	76.82
19	98.5	80.17	123.5	74.47	148.5	94.30	173.5	70.63
20	99	72.69	124	69.26	149	77.00	174	73.28
21	99.5	72.53	124.5	68.71	149.5	85.02	174.5	78.25
22	100	72.69	125	91.31	150	85.90	175	82.13
23	100.5	67.84	125.5	73.11	150.5	69.82	175.5	81.00
24	101	77.18	126	71.20	151	75.08	176	72.95
25	101.5	78.89	126.5	74.47	151.5	73.71	176.5	6753.05
26	102	74.73	127	72.69	152	79.34	177	6287.82
27	102.5	86.90	127.5	70.06	152.5	99.77	177.5	82.79
28	103	79.71	128	82.32	153	72.53	178	77.45
29	103.5	82.99	128.5	78.43	153.5	90.05	178.5	90.26
30	104	82.32	129	97.72	154	11926.14	179	68.39
31	104.5	77.80	129.5	65.84	154.5	10268.33	179.5	80.63
32	105	67.61	130	81.66	155	70.96	180	79.98
33	105.5	69.82	130.5	90.57	155.5	76.12	180.5	81.28
34	106	78.43	131	73.71	156	82.32	181	74.13
35	106.5	71.20	131.5	16519.62	156.5	83.27	181.5	80.63
36	107	71.20	132	193.64	157	79.07	182	75.08
37	107.5	77.62	132.5	73.71	157.5	78.43	182.5	85.02
38	108	71.53	133	68.94	158	69.66	183	75.86
39	108.5	70.63	133.5	74.13	158.5	72.69	183.5	73.11
40	109	9172.76	134	85.51	159	81.94	184	86.60
41	109.5	68.16	134.5	90.05	159.5	79.98	184.5	72.11
42	110	69.82	135	79.52	160	68.94	185	84.63
43	110.5	68.71	135.5	80.63	160.5	77.45	185.5	81.28
44	111	89.85	136	66.07	161	79.98	186	77.62
45	111.5	69.10	136.5	73.71	161.5	74.30	186.5	91.52
46	112	72.11	137	78.70	162	74.73	187	90.78
47	112.5	69.26	137.5	69.82	162.5	73.71	187.5	82.13
48	113	73.11	138	70.79	163	87.60	188	5915.62
49	113.5	79.07	138.5	69.50	163.5	82.79	188.5	70.96
50	114	69.10	139	69.66	164	87.10	189	74.13

FINE TUNE Pulses; Fundamental Frequency = 418MHz

	mSec	Level uV/m	mSec	Level uV/m	mSec	Level uV/m	mSec	Level uV/m
1	95	106.05	120	103.28	145	119.67	170	105.44
2	95.5	103.28	120.5	117.08	145.5	107.40	170.5	113.89
3	96	110.92	121	97.27	146	104.95	171	103.28
4	96.5	119.40	121.5	107.89	146.5	107.03	171.5	113.24
5	97	100.58	122	119.95	147	104.11	172	115.88
6	97.5	119.67	122.5	119.40	147.5	108.77	172.5	118.71
7	98	106.05	123	109.14	148	110.03	173	104.35
8	98.5	106.78	123.5	103.75	148.5	103.75	173.5	103.28
9	99	110.28	124	111.43	149	106.78	174	99.77
10	99.5	25032.26	124.5	106.05	149.5	114.16	174.5	105.20
11	100	25351.29	125	101.39	150	119.67	175	101.39
12	100.5	107.89	125.5	117.08	150.5	130.92	175.5	109.65
13	101	114.68	126	101.86	151	108.27	176	105.80
14	101.5	129.57	126.5	25351.29	151.5	110.28	176.5	114.16
15	102	135.05	127	105.80	152	106.29	177	109.65
16	102.5	115.35	127.5	108.27	152.5	113.89	177.5	98.29
17	103	105.80	128	104.95	153	25615.33	178	108.77
18	103.5	114.55	128.5	121.34	153.5	106.29	178.5	107.40
19	104	99.20	129	112.98	154	101.86	179	97.72
20	104.5	103.04	129.5	104.95	154.5	116.82	179.5	25409.73
21	105	116.82	130	109.40	155	102.45	180	25556.42
22	105.5	113.24	130.5	109.14	155.5	102.45	180.5	118.71
23	106	111.17	131	103.75	156	109.40	181	119.40
24	106.5	110.54	131.5	112.33	156.5	107.89	181.5	124.74
25	107	114.16	132	117.49	157	104.95	182	117.76
26	107.5	108.77	132.5	116.82	157.5	120.36	182.5	101.86
27	108	136.93	133	111.17	158	105.20	183	112.72
28	108.5	105.44	133.5	102.45	158.5	102.68	183.5	100.00
29	109	152.05	134	108.27	159	116.14	184	100.58
30	109.5	111.43	134.5	108.27	159.5	106.78	184.5	103.75
31	110	109.40	135	135.05	160	101.86	185	114.16
32	110.5	132.59	135.5	122.60	160.5	115.61	185.5	110.03
33	111	118.99	136	110.92	161	102.21	186	100.00
34	111.5	101.62	136.5	121.34	161.5	104.11	186.5	122.60
35	112	118.44	137	113.89	162	126.18	187	110.03
36	112.5	96.72	137.5	105.80	162.5	94.19	187.5	108.52
37	113	25292.98	138	106.05	163	104.11	188	109.40
38	113.5	25292.98	138.5	113.63	163.5	110.28	188.5	116.55
39	114	108.27	139	116.82	164	107.03	189	110.54
40	114.5	104.95	139.5	25292.98	164.5	112.72	189.5	105.80
41	115	109.65	140	25497.64	165	106.78	190	104.95
42	115.5	111.17	140.5	111.43	165.5	103.51	190.5	104.35
43	116	110.03	141	113.24	166	105.80	191	111.81
44	116.5	106.78	141.5	117.76	166.5	25497.64	191.5	132.28
45	117	107.40	142	114.55	167	100.23	192	119.95
46	117.5	135.36	142.5	105.44	167.5	100.58	192.5	100.23
47	118	120.36	143	105.80	168	101.86	193	25409.73
48	118.5	116.14	143.5	103.51	168.5	104.35	193.5	114.16
49	119	99.77	144	120.36	169	99.20	194	101.86
50	119.5	114.16	144.5	109.14	169.5	104.35	194.5	116.55