# Silicon Laboratories, Inc.

**TEST REPORT FOR** 

## Thin ZigBee-to-Ethernet Gateway Model: 130-0880-000-A0

**Tested To The Following Standards:** 

FCC Part 15 Subpart C Section(s) 15.207 and 15.247

Report No.: 95499-6

Date of issue: September 29, 2014



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 EMC 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**

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Silicon Laboratories, Inc. 400 West Cesar Chavez Austin, TX 78701	Dianne Dudley CKC Laboratories, Inc. 5046 Sierra Pines Drive Mariposa, CA 95338	
Representative: Kumar Chaklashiya - Global Testing Customer Reference Number: KC332	Project Number: 95499	
DATE OF FOUIPMENT RECEIPT:	September 5, 2014	

DATE OF EQUIPMENT RECEIPT: DATE(S) OF TESTING:

**REPORT PREPARED FOR:** 

September 5, 2014 September 5-14, 2014

**REPORT PREPARED BY:** 

# **Report Authorization**

The test data contained in this report documents the observed testing parameters pertaining to and are relevant for only the sample equipment 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.

Steve -7 Belo

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	5.00.14
Immunity	5.00.07

## Site Registration & Accreditation Information

Location	CB #	TAIWAN	CANADA	FCC	JAPAN
Brea A	US0060	SL2-IN-E-1146R	3082D-1	90473	A-0147
Brea D	US0060	SL2-IN-E-1146R	3082D-2	100638	A-0147



## SUMMARY OF RESULTS

## Standard / Specification: FCC Part 15 Subpart C

Test Procedure/Method	Description	Modifications *	Results
15.207 / ANSI C63.4	Conducted Emissions	NA	Pass
15.247(a)(2) / 15.215(c) / 558074 D01 DTS Meas Guidance v03r02	-6dB Occupied Bandwidth	NA	Pass
15.247(b)(3)/ 558074 D01 DTS Meas Guidance v03r02	RF Power Output	NA	Pass
15.31(e) / 2.1055(d)	Voltage Variation	NA	Pass
15.247(d) / 558074 D01 DTS Meas Guidance v03r02 / ITU- R/551	Radiated Spurious Emissions and Band Edge	NA	Pass
15.247(e) / 558074 D01 DTS Meas Guidance v03r02	Power Spectral Density	NA	Pass

# **Modifications\*/Conditions During Testing**

This list is a summary of the conditions noted for or modifications made to the equipment during testing.

Summary of Conditions	
No modifications were made to the EUT during testing.	
Note: See Appendix A for Duty Cycle Correction Factor Calculation.	

\*Modifications listed above must be incorporated into all production units.



# **EQUIPMENT UNDER TEST (EUT)**

## **EQUIPMENT UNDER TEST**

## Thin ZigBee-to-Ethernet Gateway

Manuf: Silicon Laboratories, Inc. Model: 130-0880-000-A0 Serial: 70B3D555902A

## **PERIPHERAL DEVICES**

The EUT was tested with the following peripheral device(s):

### Laptop Computer

Manuf: Lenovo Model: Thinkpad T500 Serial: L3B3906

## **DC Power Supply**

Manuf: Xantrex Model: XTS-30-2X Serial: 58738

## AC to 6VDC Power Adapter

Manuf: Triad Model: WDU6-800 Serial: NA



# FCC PART 15 SUBPART C

This report contains EMC emissions test results under United States Federal Communications Commission (FCC) CFR 47 Section 15 Subpart C requirements for Intentional Radiators.

## **15.207 AC Conducted Emissions**

## **Test Data**

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • 714-993-6112

Customer:	Silicon Laboratories, Inc.		
Specification:	15.207 AC Mains - Average		
Work Order #:	95499	Date:	9/12/2014
Test Type:	Conducted Emissions	Time:	4:36:58 PM
Equipment:	Thin ZigBee-to-Ethernet gateway	Sequence#:	3
Manufacturer:	Silicon Laboratories, Inc.	Tested By:	S. Yamamoto
Model:	130-0880-000-A0		120V 60Hz
S/N:	70B3D555902A		

### Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02869	Spectrum Analyzer	E4440A	7/10/2014	7/10/2015
T1	AN02343	High Pass Filter	HE9615-150K-	1/10/2013	1/10/2015
			50-720B		
T2	ANP01910	Cable	RG-142	1/8/2014	1/8/2016
Т3	ANP06085	Attenuator	SA18N10W-09	12/14/2012	12/14/2014
T4	AN00847.1	50uH LISN-Line 1	3816/2NM	6/26/2014	6/26/2015
		(dB)			
	AN00847.1	50uH LISN-Line 2	3816/2NM	6/26/2014	6/26/2015
		(dB)			

## *Equipment Under Test* (\* = EUT):

Function	Manufacturer	Model #	S/N
Thin ZigBee-to-Ethernet	Silicon Laboratories, Inc.	130-0880-000-A0	70B3D555902A
gateway*			

## Support Devices:

Function	Manufacturer	Model #	S/N
Laptop Computer	Lenovo	Thinkpad T500	L3B3906
AC to 6VDC power adapter	Triad	WDU6-800	NA



## Test Conditions / Notes:

The equipment under test (EUT) and power supply are adjacent to each other on the table top. The EUT is connected to a remotely located laptop computer via unshielded cat 5e cable. The computer is running Telnet which can command the EUT to various test frequencies.

The EUT is set to the channel with the highest power level which is 2405MHz and +19dBm.

The EUT is on and continuously transmitting.

Frequency range of data sheet, 150kHz to 30MHz. RBW=9kHz, VBW=9kHz.

Temperature: 22°C Relative Humidity: 44% Pressure: 100kPa

Site D

Ext Attn: 0 dB

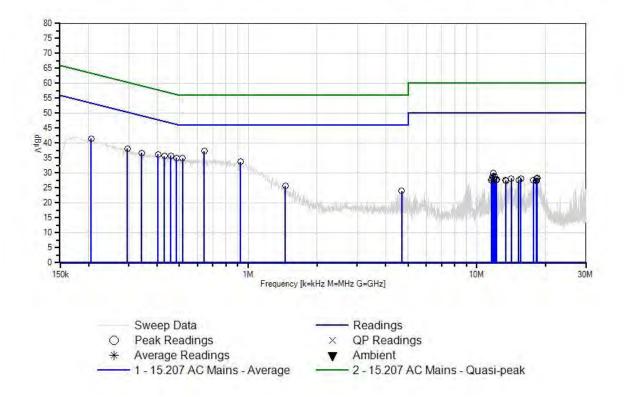
	ttn: 0 dB										
	rement Data:		eading list	ted by ma	argin.			Test Lead	l: L1(L)		
#	Freq	Rdng	T1	T2	Т3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV	dBµV	dB	Ant
1	642.318k	31.4	+0.2	+0.0	+5.7	+0.0	+0.0	37.3	46.0	-8.7	L1(L)
2	458.335k	29.9	+0.2	+0.0	+5.7	+0.0	+0.0	35.8	46.7	-10.9	L1(L)
3	485.242k	29.2	+0.2	+0.0	+5.7	+0.0	+0.0	35.1	46.2	-11.1	L1(L)
4	515.785k	29.0	+0.2	+0.0	+5.7	+0.0	+0.0	34.9	46.0	-11.1	L1(L)
5	403.068k	30.4	+0.2	+0.0	+5.7	+0.0	+0.0	36.3	47.8	-11.5	L1(L)
6	429.247k	29.7	+0.2	+0.0	+5.7	+0.0	+0.0	35.6	47.3	-11.7	L1(L)
7	205.268k	35.6	+0.2	+0.0	+5.7	+0.0	+0.0	41.5	53.4	-11.9	L1(L)
8	296.168k	32.2	+0.2	+0.0	+5.7	+0.0	+0.0	38.1	50.3	-12.2	L1(L)
9	923.985k	27.9	+0.1	+0.0	+5.7	+0.0	+0.0	33.7	46.0	-12.3	L1(L)
10	341.255k	30.8	+0.2	+0.0	+5.7	+0.0	+0.0	36.7	49.2	-12.5	L1(L)
11	11.824M	23.8	+0.2	+0.2	+5.8	+0.1	+0.0	30.1	50.0	-19.9	L1(L)
12	1.456M	19.7	+0.2	+0.0	+5.7	+0.0	+0.0	25.6	46.0	-20.4	L1(L)
13	11.716M	22.6	+0.2	+0.2	+5.8	+0.1	+0.0	28.9	50.0	-21.1	L1(L)
14	11.950M	22.5	+0.2	+0.2	+5.8	+0.1	+0.0	28.8	50.0	-21.2	L1(L)
15	18.364M	21.8	+0.2	+0.4	+5.8	+0.2	+0.0	28.4	50.0	-21.6	L1(L)
16	14.148M	21.8	+0.2	+0.3	+5.8	+0.1	+0.0	28.2	50.0	-21.8	L1(L)
17	18.247M	21.6	+0.2	+0.4	+5.8	+0.2	+0.0	28.2	50.0	-21.8	L1(L)
1											



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20       11.652M       21.7       +0.2       +5.8       +0.1       +0.0       28.0       50.0       -22.0       L1(L)         21       11.896M       21.6       +0.2       +0.2       +5.8       +0.1       +0.0       27.9       50.0       -22.1       L1(L)         22       12.202M       21.6       +0.2       +0.2       +5.8       +0.1       +0.0       27.9       50.0       -22.1       L1(L)         23       12.139M       21.4       +0.2       +0.2       +5.8       +0.1       +0.0       27.7       50.0       -22.3       L1(L)         24       17.697M       21.1       +0.2       +0.4       +5.8       +0.2       +0.0       27.7       50.0       -22.3       L1(L)         25       13.355M       21.2       +0.2       +0.3       +5.8       +0.1       +0.0       27.6       50.0       -22.4       L1(L)         26       15.247M       21.2       +0.2       +0.3       +5.8       +0.1       +0.0       27.6       50.0       -22.4       L1(L)         27       11.589M       21.2       +0.2       +5.8       +0.1       +0.0       27.5       50.0       -22.5 <td< td=""><td>18</td><td>15.616M</td><td>21.7</td><td>+0.2</td><td>+0.3</td><td>+5.8</td><td>+0.1</td><td>+0.0</td><td>28.1</td><td>50.0</td><td>-21.9</td><td>L1(L)</td></td<>	18	15.616M	21.7	+0.2	+0.3	+5.8	+0.1	+0.0	28.1	50.0	-21.9	L1(L)
21       11.896M       21.6       +0.2       +5.8       +0.1       +0.0       27.9       50.0       -22.1       L1(L)         22       12.202M       21.6       +0.2       +0.2       +5.8       +0.1       +0.0       27.9       50.0       -22.1       L1(L)         23       12.139M       21.4       +0.2       +0.2       +5.8       +0.1       +0.0       27.7       50.0       -22.3       L1(L)         24       17.697M       21.1       +0.2       +0.4       +5.8       +0.2       +0.0       27.7       50.0       -22.3       L1(L)         25       13.355M       21.2       +0.2       +0.3       +5.8       +0.1       +0.0       27.6       50.0       -22.4       L1(L)         26       15.247M       21.2       +0.2       +0.3       +5.8       +0.1       +0.0       27.6       50.0       -22.4       L1(L)         27       11.589M       21.2       +0.2       +0.2       +5.8       +0.1       +0.0       27.5       50.0       -22.5       L1(L)         28       13.418M       21.0       +0.2       +0.3       +5.8       +0.1       +0.0       27.4       50.0	19	4.696M	18.0	+0.1	+0.2	+5.7	+0.0	+0.0	24.0	46.0	-22.0	L1(L)
22       12.202M       21.6       +0.2       +0.2       +5.8       +0.1       +0.0       27.9       50.0       -22.1       L1(L)         23       12.139M       21.4       +0.2       +0.2       +5.8       +0.1       +0.0       27.7       50.0       -22.3       L1(L)         24       17.697M       21.1       +0.2       +0.4       +5.8       +0.2       +0.0       27.7       50.0       -22.3       L1(L)         25       13.355M       21.2       +0.2       +0.3       +5.8       +0.1       +0.0       27.6       50.0       -22.4       L1(L)         26       15.247M       21.2       +0.2       +0.3       +5.8       +0.1       +0.0       27.6       50.0       -22.4       L1(L)         27       11.589M       21.2       +0.2       +0.3       +5.8       +0.1       +0.0       27.6       50.0       -22.4       L1(L)         27       11.589M       21.2       +0.2       +0.3       +5.8       +0.1       +0.0       27.5       50.0       -22.5       L1(L)         28       13.418M       21.0       +0.2       +0.3       +5.8       +0.1       +0.0       27.4	20	11.652M	21.7	+0.2	+0.2	+5.8	+0.1	+0.0	28.0	50.0	-22.0	L1(L)
23       12.139M       21.4       +0.2       +5.8       +0.1       +0.0       27.7       50.0       -22.3       L1(L)         24       17.697M       21.1       +0.2       +0.4       +5.8       +0.2       +0.0       27.7       50.0       -22.3       L1(L)         25       13.355M       21.2       +0.2       +0.3       +5.8       +0.1       +0.0       27.6       50.0       -22.4       L1(L)         26       15.247M       21.2       +0.2       +0.3       +5.8       +0.1       +0.0       27.6       50.0       -22.4       L1(L)         27       11.589M       21.2       +0.2       +0.3       +5.8       +0.1       +0.0       27.5       50.0       -22.4       L1(L)         27       11.589M       21.2       +0.2       +0.2       +5.8       +0.1       +0.0       27.5       50.0       -22.5       L1(L)         28       13.418M       21.0       +0.2       +0.3       +5.8       +0.1       +0.0       27.4       50.0       -22.6       L1(L)         29       18.184M       20.8       +0.2       +0.4       +5.8       +0.2       +0.0       27.4       50.0	21	11.896M	21.6	+0.2	+0.2	+5.8	+0.1	+0.0	27.9	50.0	-22.1	L1(L)
24       17.697M       21.1       +0.2       +0.4       +5.8       +0.2       +0.0       27.7       50.0       -22.3       L1(L)         25       13.355M       21.2       +0.2       +0.3       +5.8       +0.1       +0.0       27.6       50.0       -22.4       L1(L)         26       15.247M       21.2       +0.2       +0.3       +5.8       +0.1       +0.0       27.6       50.0       -22.4       L1(L)         27       11.589M       21.2       +0.2       +0.3       +5.8       +0.1       +0.0       27.5       50.0       -22.4       L1(L)         27       11.589M       21.2       +0.2       +0.2       +5.8       +0.1       +0.0       27.5       50.0       -22.5       L1(L)         28       13.418M       21.0       +0.2       +0.3       +5.8       +0.1       +0.0       27.4       50.0       -22.6       L1(L)         29       18.184M       20.8       +0.2       +0.4       +5.8       +0.2       +0.0       27.4       50.0       -22.6       L1(L)	22	12.202M	21.6	+0.2	+0.2	+5.8	+0.1	+0.0	27.9	50.0	-22.1	L1(L)
25       13.355M       21.2       +0.2       +0.3       +5.8       +0.1       +0.0       27.6       50.0       -22.4       L1(L)         26       15.247M       21.2       +0.2       +0.3       +5.8       +0.1       +0.0       27.6       50.0       -22.4       L1(L)         27       11.589M       21.2       +0.2       +0.2       +5.8       +0.1       +0.0       27.5       50.0       -22.5       L1(L)         28       13.418M       21.0       +0.2       +0.3       +5.8       +0.1       +0.0       27.4       50.0       -22.6       L1(L)         29       18.184M       20.8       +0.2       +0.4       +5.8       +0.2       +0.0       27.4       50.0       -22.6       L1(L)	23	12.139M	21.4	+0.2	+0.2	+5.8	+0.1	+0.0	27.7	50.0	-22.3	L1(L)
26       15.247M       21.2       +0.2       +0.3       +5.8       +0.1       +0.0       27.6       50.0       -22.4       L1(L)         27       11.589M       21.2       +0.2       +5.8       +0.1       +0.0       27.5       50.0       -22.5       L1(L)         28       13.418M       21.0       +0.2       +0.3       +5.8       +0.1       +0.0       27.4       50.0       -22.6       L1(L)         29       18.184M       20.8       +0.2       +0.4       +5.8       +0.2       +0.0       27.4       50.0       -22.6       L1(L)	24	17.697M	21.1	+0.2	+0.4	+5.8	+0.2	+0.0	27.7	50.0	-22.3	L1(L)
27       11.589M       21.2       +0.2       +5.8       +0.1       +0.0       27.5       50.0       -22.5       L1(L)         28       13.418M       21.0       +0.2       +0.3       +5.8       +0.1       +0.0       27.4       50.0       -22.6       L1(L)         29       18.184M       20.8       +0.2       +0.4       +5.8       +0.2       +0.0       27.4       50.0       -22.6       L1(L)	25	13.355M	21.2	+0.2	+0.3	+5.8	+0.1	+0.0	27.6	50.0	-22.4	L1(L)
28       13.418M       21.0       +0.2       +0.3       +5.8       +0.1       +0.0       27.4       50.0       -22.6       L1(L)         29       18.184M       20.8       +0.2       +0.4       +5.8       +0.2       +0.0       27.4       50.0       -22.6       L1(L)	26	15.247M	21.2	+0.2	+0.3	+5.8	+0.1	+0.0	27.6	50.0	-22.4	L1(L)
29 18.184M 20.8 +0.2 +0.4 +5.8 +0.2 +0.0 27.4 50.0 -22.6 L1(L)	27	11.589M	21.2	+0.2	+0.2	+5.8	+0.1	+0.0	27.5	50.0	-22.5	L1(L)
	28	13.418M	21.0	+0.2	+0.3	+5.8	+0.1	+0.0	27.4	50.0	-22.6	L1(L)
30 18.301M 20.8 +0.2 +0.4 +5.8 +0.2 +0.0 27.4 50.0 -22.6 L1(L)	29	18.184M	20.8	+0.2	+0.4	+5.8	+0.2	+0.0	27.4	50.0	-22.6	L1(L)
	30	18.301M	20.8	+0.2	+0.4	+5.8	+0.2	+0.0	27.4	50.0	-22.6	L1(L)



CKC Laboratories, Inc. Date: 9/12/2014 Time: 4:36:58 PM Silicon Laboratories, Inc. WO#: 95499 15:207 AC Mains - Average Test Lead: L1(L) 120V 60Hz Sequence#: 3 Ext ATTN: 0 dB





Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • 714-993-6112

Customer: Specification:	Silicon Laboratories, Inc. 15.207 AC Mains - Average		
Work Order #:	95499	Date:	9/12/2014
Test Type:	Conducted Emissions	Time:	4:41:18 PM
Equipment:	Thin ZigBee-to-Ethernet gateway	Sequence#:	4
Manufacturer:	Silicon Laboratories, Inc.	Tested By:	S. Yamamoto
Model:	130-0880-000-A0		120V 60Hz
S/N:	70B3D555902A		

#### Test Equipment:

1 CBt Equ	pinenn				
ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02869	Spectrum Analyzer	E4440A	7/10/2014	7/10/2015
T1	AN02343	High Pass Filter	HE9615-150K-	1/10/2013	1/10/2015
			50-720B		
T2	ANP01910	Cable	RG-142	1/8/2014	1/8/2016
Т3	ANP06085	Attenuator	SA18N10W-09	12/14/2012	12/14/2014
	AN00847.1	50uH LISN-Line 1	3816/2NM	6/26/2014	6/26/2015
		(dB)			
T4	AN00847.1	50uH LISN-Line 2	3816/2NM	6/26/2014	6/26/2015
		(dB)			

#### *Equipment Under Test* (\* = EUT):

Function	Manufacturer	Model #	S/N
Thin ZigBee-to-Ethernet	Silicon Laboratories, Inc.	130-0880-000-A0	70B3D555902A
gateway*			

### Support Devices:

Function	Manufacturer	Model #	S/N
Laptop Computer	Lenovo	Thinkpad T500	L3B3906
AC to 6VDC power adapter	Triad	WDU6-800	NA

### Test Conditions / Notes:

The equipment under test (EUT) and power supply are adjacent to each other on the table top. The EUT is connected to a remotely located laptop computer via unshielded cat 5e cable. The computer is running Telnet which can command the EUT to various test frequencies.

The EUT is set to the channel with the highest power level which is 2405MHz and +19dBm.

The EUT is on and continuously transmitting.

Frequency range of data sheet, 150kHz to 30MHz. RBW=9kHz, VBW=9kHz.

Temperature: 22°C Relative Humidity: 44% Pressure: 100kPa

Site D



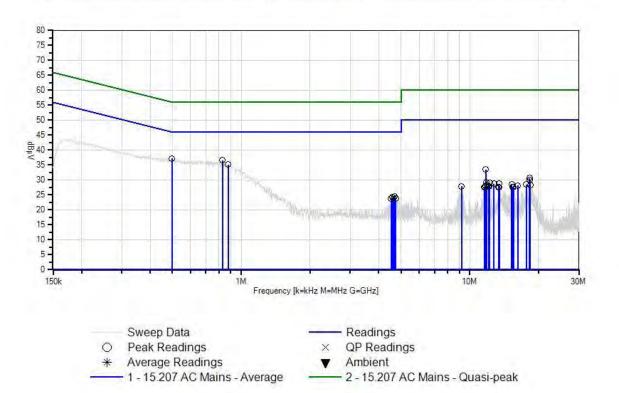
Ext Attn: 0 dB

	ement Data:	Re	ading lis	ted by ma	argin.			Test Lead	d: (N)L2		
#	Freq	Rdng	T1	T2	Т3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV	dBµV	dB	Ant
1	497.604k	31.3	+0.2	+0.0	+5.7	+0.0	+0.0	37.2	46.0	-8.8	(N)L2
2	827.029k	30.8	+0.1	+0.0	+5.7	+0.0	+0.0	36.6	46.0	-9.4	(N)L2
3	877.205k	29.4	+0.1	+0.0	+5.7	+0.0	+0.0	35.2	46.0	-10.8	(N)L2
4	11.761M	27.1	+0.2	+0.2	+5.8	+0.2	+0.0	33.5	50.0	-16.5	(N)L2
5	18.238M	23.9	+0.2	+0.4	+5.8	+0.3	+0.0	30.6	50.0	-19.4	(N)L2
6	18.301M	23.3	+0.2	+0.4	+5.8	+0.3	+0.0	30.0	50.0	-20.0	(N)L2
7	11.824M	23.0	+0.2	+0.2	+5.8	+0.2	+0.0	29.4	50.0	-20.6	(N)L2
8	12.202M	22.6	+0.2	+0.2	+5.8	+0.2	+0.0	29.0	50.0	-21.0	(N)L2
9	13.418M	22.3	+0.2	+0.3	+5.8	+0.2	+0.0	28.8	50.0	-21.2	(N)L2
10	12.743M	22.2	+0.2	+0.3	+5.8	+0.2	+0.0	28.7	50.0	-21.3	(N)L2
11	15.247M	22.1	+0.2	+0.3	+5.8	+0.2	+0.0	28.6	50.0	-21.4	(N)L2
12	4.696M	18.4	+0.1	+0.2	+5.7	+0.1	+0.0	24.5	46.0	-21.5	(N)L2
13	17.697M	21.9	+0.2	+0.4	+5.8	+0.2	+0.0	28.5	50.0	-21.5	(N)L2
14	11.887M	21.9	+0.2	+0.2	+5.8	+0.2	+0.0	28.3	50.0	-21.7	(N)L2
15	18.364M	21.6	+0.2	+0.4	+5.8	+0.3	+0.0	28.3	50.0	-21.7	(N)L2
16	4.586M	18.1	+0.1	+0.2	+5.7	+0.1	+0.0	24.2	46.0	-21.8	(N)L2
17	16.229M	21.7	+0.2	+0.3	+5.8	+0.2	+0.0	28.2	50.0	-21.8	(N)L2
18	11.706M	21.7	+0.2	+0.2	+5.8	+0.2	+0.0	28.1	50.0	-21.9	(N)L2
19	4.641M	17.9	+0.1	+0.2	+5.7	+0.1	+0.0	24.0	46.0	-22.0	(N)L2
20	4.526M	17.8	+0.1	+0.2	+5.7	+0.1	+0.0	23.9	46.0	-22.1	(N)L2
21	9.220M	21.5	+0.2	+0.2	+5.8	+0.2	+0.0	27.9	50.0	-22.1	(N)L2
22	12.139M	21.5	+0.2	+0.2	+5.8	+0.2	+0.0	27.9	50.0	-22.1	(N)L2
23	12.103M	21.4	+0.2	+0.2	+5.8	+0.2	+0.0	27.8	50.0	-22.2	(N)L2
24	11.589M	21.3	+0.2	+0.2	+5.8	+0.2	+0.0	27.7	50.0	-22.3	(N)L2
L											



25	4.747M	17.6	+0.1	+0.2	+5.7	+0.1	+0.0	23.7	46.0	-22.3	(N)L2
26	13.355M	21.2	+0.2	+0.3	+5.8	+0.2	+0.0	27.7	50.0	-22.3	(N)L2
27	15.553M	21.2	+0.2	+0.3	+5.8	+0.2	+0.0	27.7	50.0	-22.3	(N)L2
28	13.481M	21.2	+0.2	+0.3	+5.8	+0.2	+0.0	27.7	50.0	-22.3	(N)L2
29	11.652M	21.2	+0.2	+0.2	+5.8	+0.2	+0.0	27.6	50.0	-22.4	(N)L2
30	15.436M	21.0	+0.2	+0.3	+5.8	+0.2	+0.0	27.5	50.0	-22.5	(N)L2

CKC Laboratories, Inc. Date: 9/12/2014 Time: 4:41:18 PM Silicon Laboratories, Inc. WO#: 95499 15:207 AC Mains - Average Test Lead: (N)L2 120V 60Hz Sequence#: 4 Ext ATTN: 0 dB





# **Test Setup Photos**





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# 15.247(a)(2) / 15.215(c) -6dB Occupied Bandwidth

## **Test Conditions / Setup**

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • 714-993-6112

Customer: Specification:	Silicon Laboratories, Inc. 15.247(a)(2) 6dB Bandwidth		
Work Order #:	95499	Date:	09/10/2014
Test Type:	Maximized Emissions		
Equipment:	Thin ZigBee-to-Ethernet gateway		
Manufacturer:	Silicon Laboratories, Inc.	Tested By:	S. Yamamoto
Model:	130-0880-000-A0		
S/N:	70B3D555902A		

#### Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02869	Spectrum Analyzer	E4440A	7/10/2014	7/10/2015
T2	ANP05421	Cable	Sucoflex 104A	1/8/2014	1/8/2016
Т3	ANP06661	Cable	LDF1-50	4/15/2014	4/15/2016
T4	AN00849	Horn Antenna	3115	3/18/2014	3/18/2016

### Equipment Under Test (\* = EUT):

Function	Manufacturer	Model #	S/N
Thin ZigBee-to-Ethernet	Silicon Laboratories, Inc.	130-0880-000-A0	70B3D555902A
gateway*			

#### Support Devices:

Function	Manufacturer	Model #	S/N
Laptop Computer	Lenovo	Thinkpad T500	L3B3906
AC to 6VDC Power Supply	Triad	WDU6-800	NA

#### Test Conditions / Notes:

The equipment under test (EUT) is stand alone on the Styrofoam table top. The EUT is connected to a remotely located laptop computer via unshielded cat 5e cable. The computer is running Telnet which is commanding the EUT to the appropriate test frequencies.

The test frequencies are 2405MHz, 2440MHz, and 2480MHz. An external AC to DC power supply is also connected to the EUT. Nominal voltage of the EUT is 6VDC.

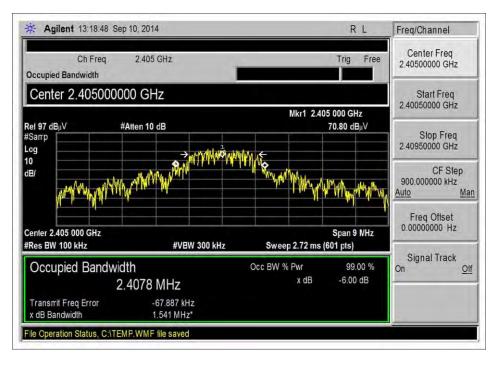
Frequency range of measurement, 2400MHz to 2483.5MHz.

Temperature: 31°C Relative Humidity: 44% Pressure: 100kPa

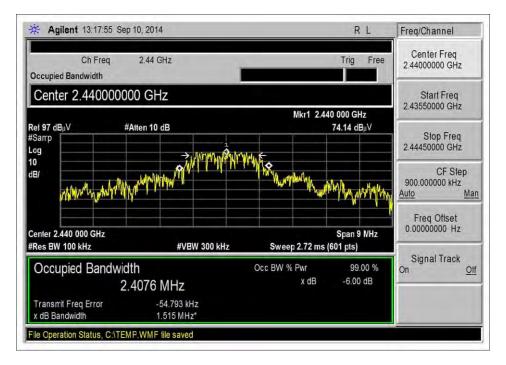
Site D



## Test Data

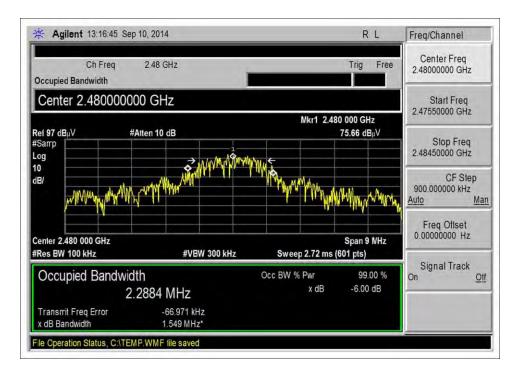


### -6dB Bandwidth, 2405MHz Low Channel



-6dB Bandwidth, 2440MHz Middle Channel





-6dB Bandwidth, 2480MHz High Channel



## **Test Setup Photo**



# 15.247(b)(3) RF Power Output

## **Test Conditions / Setup**

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • 714-993-6112

Customer: Specification: Work Order #:	Silicon Laboratories, Inc. 15.247(b)(3) Power Output (2400-2483.5 M 95499	(Hz)	
Test Type:	Maximized Emissions	Test Date:	09/05/2014
Equipment:	Thin ZigBee-to-Ethernet gateway		
Manufacturer:	Silicon Laboratories, Inc.	Tested By:	S. Yamamoto
Model:	130-0880-000-A0		
S/N:	70B3D555902A		

## Test Equipment:

 <u> </u>					
ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02869	Spectrum Analyzer	E4440A	7/10/2014	7/10/2015
T2	ANP05421	Cable	Sucoflex 104A	1/8/2014	1/8/2016
Т3	ANP06661	Cable	LDF1-50	4/15/2014	4/15/2016
T4	AN00849	Horn Antenna	3115	3/18/2014	3/18/2016

## Equipment Under Test (\* = EUT):

Function	Manufacturer	Model #	S/N
Thin ZigBee-to-Ethernet gateway*	Silicon Laboratories, Inc.	130-0880-000-A0	70B3D555902A

## Support Devices:

Function	Manufacturer	Model #	S/N
Laptop Computer	Lenovo	Thinkpad T500	L3B3906
AC to 6VDC Power Supply	Triad	WDU6-800	NA

Test Conditions / Notes:

The equipment under test (EUT) is stand alone on the Styrofoam table top. The EUT is connected to a remotely located laptop computer via unshielded cat 5e cable. The computer is running Telnet which is commanding the EUT to the appropriate test frequencies.

The test frequencies are 2405MHz, 2440MHz, and 2480MHz. RBW=1.8MHz, VBW=6MHz. n external AC to DC power supply is also connected to the EUT.

Nominal voltage of the EUT is 6VDC.

Frequency range of measurement, 2400MHz to 2483.5MHz.

Temperature: 30°C Relative Humidity: 46% Pressure: 100kPa

Site D

Frequency: 2405MHz. Firmware power setting = 0xff, +19dBm Frequency: 2440MHz. Firmware power setting = 0xfe, +18dBm Frequency: 2480MHz. Firmware power setting = 0xe6, -6dBm



Test Conditions / Notes: (continued)

Data presented below is representative of worst case emissions. Calculations sample as follows: From ANSI C63.10  $P_t = (E \ge d)^2/(30 \ge G_t)$ Where:  $P_t =$  the power in watts  $G_t =$  the numeric gain of the radiating antenna E = the measured peak field strength in V/m d = the distance at which the measurement was made in meters  $P_t = TBD$   $G_t = 2.75$  (Manufacturers declared gain) E = 115.9 dBuV/m = 0.624 V/m d = 3  $P_t = (0.624 \ge 3)^2/(30 \ge 2.75)$  $P_t = 0.0425 \text{ W}$ 

Frequency	Peak output power calculated from measured peak field strength	15.247(b)(3) Peak output power limit
(MHz)	(W)	(W)
2405	0.0425	1
2440	0.0361	1
2480	0.00013	1

Note: The high channel power is lower than the other two channels because it is nearer to the band edge. Due to this, the power level was reduced in order to fall within the band edge requirements.

## **Test Data**

Meas	surement Data	a: Rea	ding liste	d by freq	uency.		Те	est Distance	e: 3 Meters		
#	Freq	Rdng	T1	T2	Т3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	2405.000M	85.4	+0.0	+1.1	+4.1	+25.3	+0.0	115.9	127.4	-11.5	Horiz
2	2440.000M	84.5	+0.0	+1.2	+4.1	+25.4	+0.0	115.2	127.4	-12.2	Vert
3	2480.000M	60.0	+0.0	+1.3	+4.2	+25.4	+0.0	90.9	127.4	-36.5	Horiz



# **Test Setup Photo**





# 15.31(e) Voltage Variations

## **Test Conditions / Setup**

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • 714-993-6112

Customer: Specification:	Silicon Laboratories, Inc. 15.31(e) Voltage Variation on Power		
Work Order #:	95499	Date:	9/10/2014
Test Type:	Maximized Emissions		
Equipment:	Thin ZigBee-to-Ethernet gateway		
Manufacturer:	Silicon Laboratories, Inc.	Tested By:	S. Yamamoto
Model:	130-0880-000-A0		
S/N:	70B3D555902A		

#### Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02869	Spectrum Analyzer	E4440A	7/10/2014	7/10/2015
T2	ANP05421	Cable	Sucoflex 104A	1/8/2014	1/8/2016
Т3	ANP06661	Cable	LDF1-50	4/15/2014	4/15/2016
T4	AN00849	Horn Antenna	3115	3/18/2014	3/18/2016

### Equipment Under Test (\* = EUT):

Function	Manufacturer	Model #	S/N
Thin ZigBee-to-Ethernet	Silicon Laboratories, Inc.	130-0880-000-A0	70B3D555902A
gateway*			

#### Support Devices:

Function	Manufacturer	Model #	S/N
Laptop Computer	Lenovo	Thinkpad T500	L3B3906
DC Power Supply	Xantrex	XTS 30-2X	58738

#### Test Conditions / Notes:

The equipment under test (EUT) is stand alone on the Styrofoam table top. The EUT is connected to a remotely located laptop computer via unshielded cat 5e cable. The computer is running Telnet which is commanding the EUT to the appropriate test frequencies. The EUT is set at the rated output power.

The test frequencies are 2405MHz, 2440MHz, and 2480MHz.

An external AC to DC power supply is also connected to the EUT.

Nominal voltage of the EUT is 6VDC.

Frequency range of measurement, 2400MHz to 2483.5MHz. RBW=1.8MHz, VBW=6MHz.

Temperature: 31°C Relative Humidity: 44% Pressure: 100kPa

Pressure: 100

Site D

Firmware power setting: 2405MHz 0xff 19dBm, 2440MHz 0xfe 18dBm, 2480MHz 0xe6 -6dBm

**15.31(e)** Compliance: The supply voltage was varied between 85% and 115% of the nominal rated voltage of 6.0VDC.

No change in the fundamental signal level was observed.



# **Test Setup Photo**





# 15.247(d) Radiated Spurious Emissions and Band Edge

## Test Conditions / Setup / Data

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • 714-993-6112

Customer: Specification:	Silicon Laboratories, Inc. 15.247(d) / 15.209 Radiated Spurious Er	nissions	
Work Order #:	95499	Date:	9/14/2014
Test Type:	Maximized Emissions	Time:	13:44:41
Equipment:	Thin ZigBee-to-Ethernet gateway	Sequence#:	2
Manufacturer:	Silicon Laboratories, Inc.	Tested By:	S. Yamamoto
Model:	130-0880-000-A0		
S/N:	70B3D555902A		

Test Equipment:

	A / //		N 11		CID DI
ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02869	Spectrum Analyzer	E4440A	7/10/2014	7/10/2015
T2	ANP05421	Cable	Sucoflex 104A	1/8/2014	1/8/2016
Т3	ANP06661	Cable	LDF1-50	4/15/2014	4/15/2016
T4	AN00786	Preamp	83017A	4/25/2014	4/25/2016
T5	AN02946	Cable	32022-2-2909К-	7/31/2013	7/31/2015
			36TC		
T6	AN00849	Horn Antenna	3115	3/18/2014	3/18/2016
Τ7	AN03385	High Pass Filter	11SH10-	6/5/2013	6/5/2015
		-	3000/T10000-		
			O/O		
Т9	AN01413	Horn Antenna-ANSI	84125-80008	11/9/2012	11/9/2014
		C63.5 (dB/m)			
	AN01413	Horn Antenna-SAE	84125-80008	11/9/2012	11/9/2014
		ARP958 (dB/m)			
T10	ANP06543	Cable	32022-29094K-	11/20/2013	11/20/2015
			29094K-24TC		
T11	AN03158	Active Horn Antenna	AMFW-5F-	12/18/2012	12/18/2014
			26004000-33-8P		
	AN00309	Preamp	8447D	3/12/2014	3/12/2016
	AN01995	Biconilog Antenna	CBL6111C	4/30/2014	4/30/2016
	ANP05050	Cable	RG223/U	1/21/2013	1/21/2015
	ANP05198	Cable-Amplitude 15	8268	12/11/2012	12/11/2014
		to $45 \text{degC}(\text{dB})$			
	ANP05198	Cable-Amplitude -15	8268	12/11/2012	12/11/2014
		to 15degC			
	AN00314	Loop Antenna	6502	7/2/2014	7/2/2016
T11	AN	Duty Cycle		NCR	NCR
		Correction Factor			
	Calibration Dogwirod				

NCR = No Calibration Required



## Equipment Under Test (\* = EUT):

Function	Manufacturer	Model #	S/N
Thin ZigBee-to-Ethernet gateway*	Silicon Laboratories, Inc.	130-0880-000-A0	70B3D555902A
galeway			

#### Support Devices:

Function	Manufacturer	Model #	S/N
Laptop Computer	Lenovo	Thinkpad T500	L3B3906
AC to 6VDC power adapter	Triad	WDU6-800	NA

## Test Conditions / Notes:

The equipment under test (EUT) is stand alone on the Styrofoam table top. The EUT is connected to a remotely located laptop computer via unshielded cat 5e cable. The computer is running Telnet which is commanding the EUT to the test frequencies.

The EUT is set at its rated output power for each of the test frequencies: 2405MHz, 2440MHz, and 2480MHz. An external AC to 6VDC power adapter is also connected to the EUT.

Data contained within this report is worst case emissions with the EUT in three different axis systems (X, Y, and Z).

Highest frequency used or generated in the device is 4.800GHz.

Frequency range of data sheet, 9kHz to 40000MHz. 9kHz to 150kHz RBW=200Hz=VBW. 150kHz to 30MHz RBW=9kHz=VBW. 30MHz to 1000MHz RBW=120kHz=VBW. 1GHz to 40GHz RBW=1MHz=VBW.

Temperature: 30°C Relative Humidity: 59% Pressure: 100kPa

Site D

Data is representative of worst case emissions.

Duty Cycle Correction Factor: The Manufacturer declares maximum duty cycle applicable to the standard is 66%. 20 Log (66/100) = -3.6 (See Appendix A for Duty Cycle Correction Factor Calculation).

## Ext Attn: 0 dB

Measu	rement Data:	R	eading lis	ted by ma	argin.		Te	est Distance	e: 3 Meters		
#	Freq	Rdng	T1	T2	Т3	T4	Dist	Corr	Spec	Margin	Polar
			T5	T6	T7	T8					
			T9	T10	T11						
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	12022.420	43.1	+0.0	+3.1	+10.4	-36.5	+0.0	53.7	54.0	-0.3	Vert
	М		+1.5	+35.6	+0.1	+0.0					
	Ave		+0.0	+0.0	-3.6						
2	14880.980	32.7	+0.0	+3.4	+11.5	-35.1	+0.0	53.5	54.0	-0.5	Vert
	М		+1.9	+38.8	+0.3	+0.0					
			+0.0	+0.0	+0.0						
3	17356.070	27.6	+0.0	+3.7	+12.7	-34.2	+0.0	53.4	54.0	-0.6	Vert
	М		+1.9	+40.0	+1.7	+0.0					
			+0.0	+0.0	+0.0						
4	12397.180	38.5	+0.0	+3.2	+10.5	-36.5	+0.0	53.4	54.0	-0.6	Vert
	М		+1.5	+35.8	+0.4	+0.0					
			+0.0	+0.0	+0.0						
5	9617.767M	40.4	+0.0	+2.7	+9.0	-36.1	+0.0	53.1	54.0	-0.9	Vert
			+1.5	+35.6	+0.0	+0.0					
			+0.0	+0.0	+0.0						



	10007 000	41 7		12.2	10.5	26.5		<b>53</b> 0	54.0	1.0	<b>T</b> 7 ·
6	12397.320	41.7	+0.0	+3.2	+10.5	-36.5	+0.0	53.0	54.0	-1.0	Vert
	М		+1.5	+35.8	+0.4	+0.0					
	Ave	40.2	+0.0	+0.0	-3.6	26.4		52.0	54.0	1 1	II.
/	9757.838M	40.2	+0.0 +1.5	+2.6	+9.0	-36.4 +0.0	+0.0	52.9	54.0	-1.1	Horiz
			+1.3 $+0.0$	+35.8	+0.2 +0.0	$\pm 0.0$					
0	9621.980M	40.2	+0.0 +0.0	+0.0 +2.7	+0.0 +9.0	-36.1	+0.0	52.9	54.0	-1.1	Vert
0	9021.980IVI	40.2	+0.0 $+1.5$	+2.7 +35.6	+9.0 +0.0	+0.0	$\pm 0.0$	52.9	34.0	-1.1	ven
			+0.0	+0.0	+0.0	10.0					
0	9621.667M	40.2	+0.0	+2.7	+9.0	-36.1	+0.0	52.9	54.0	-1.1	Vert
, ,	9021.007W	40.2	+1.5	+35.6	+9.0 +0.0	+0.0	10.0	52.9	54.0	-1.1	ven
			+0.0	+0.0	+0.0	10.0					
10	12402.270	37.9	+0.0	+3.2	+10.5	-36.5	+0.0	52.8	54.0	-1.2	Vert
10	M	51.9	+1.5	+35.8	+0.4	+0.0	10.0	52.8	54.0	-1.2	VCIL
	141		+0.0	+0.0	+0.0	10.0					
11	14642.600	31.7	+0.0	+3.3	+11.6	-35.2	+0.0	52.8	54.0	-1.2	Horiz
11	M	51.1	+1.8	+39.4	+0.2	+0.0	0.0	52.0	54.0	1.4	110112
	111		+0.0	+0.0	+0.2 $+0.0$	0.0					
12	16832.120	29.6	+0.0	+3.6	+12.3	-34.5	+0.0	52.7	54.0	-1.3	Vert
12	M	29.0	+2.2	+38.3	+1.2	+0.0	0.0	02.7	5 1.0	1.5	v ere
			+0.0	+0.0	+0.0						
13	9617.933M	39.9	+0.0	+2.7	+9.0	-36.1	+0.0	52.6	54.0	-1.4	Vert
		••••	+1.5	+35.6	+0.0	+0.0					
			+0.0	+0.0	+0.0						
14	12402.430	41.3	+0.0	+3.2	+10.5	-36.5	+0.0	52.6	54.0	-1.4	Vert
	М		+1.5	+35.8	+0.4	+0.0					
	Ave		+0.0	+0.0	-3.6						
15	9761.871M	39.9	+0.0	+2.6	+9.0	-36.4	+0.0	52.6	54.0	-1.4	Horiz
			+1.5	+35.8	+0.2	+0.0					
			+0.0	+0.0	+0.0						
16	12027.400	42.0	+0.0	+3.1	+10.4	-36.5	+0.0	52.6	54.0	-1.4	Vert
	М		+1.5	+35.6	+0.1	+0.0					
	Ave		+0.0	+0.0	-3.6						
17	14882.480	31.7	+0.0	+3.4	+11.5	-35.1	+0.0	52.5	54.0	-1.5	Vert
	М		+1.9	+38.8	+0.3	+0.0					
			+0.0	+0.0	+0.0						
	14427.100	31.5	+0.0	+3.3	+11.6	-35.3	+0.0	52.5	54.0	-1.5	Horiz
	Μ			+39.5		+0.0					
	1000-111	<u> </u>	+0.0	+0.0	+0.0					_	<b>.</b> -
19	12397.100	37.6	+0.0	+3.2	+10.5	-36.5	+0.0	52.5	54.0	-1.5	Vert
	Μ		+1.5	+35.8	+0.4	+0.0					
-	1.000 0.00	• • •	+0.0	+0.0	+0.0	<u> </u>					
20	16832.200	29.4	+0.0	+3.6	+12.3	-34.5	+0.0	52.5	54.0	-1.5	Horiz
	М		+2.2	+38.3	+1.2	+0.0					
	0001 0001 6	20.4	+0.0	+0.0	+0.0	26.2		52.5	54.0	1.5	<b>X</b> 7 ·
21	9921.882M	39.4	+0.0	+2.7	+9.1	-36.3	+0.0	52.5	54.0	-1.5	Vert
			+1.5	+36.0	+0.1	+0.0					
	7420 50014	45.0	+0.0	+0.0	+0.0	27 5		50.4	54.0	1 (	<b>V</b> 4
22	7438.508M	45.2	+0.0	+2.4	+7.8	-37.5	+0.0	52.4	54.0	-1.6	Vert
			+1.2	+33.2	+0.1	+0.0					
			+0.0	+0.0	+0.0						



22	14076 770	21.6		12.4	11.7	25.1		<b>50</b> A	54.0	1.7	TT ·
23	14876.770	31.6	+0.0	+3.4	+11.5	-35.1	+0.0	52.4	54.0	-1.6	Horiz
	М		+1.9	+38.8	+0.3 +0.0	+0.0					
24	0(21.992)4	20.6	+0.0	+0.0		26.1		52.2	54.0	17	Vont
24	9621.883M	39.6	+0.0	+2.7	+9.0	-36.1	+0.0	52.3	54.0	-1.7	Vert
			+1.5	+35.6	+0.0	+0.0					
25	17092 450	27.7	+0.0	+0.0	+0.0	24.2		52.2	54.0	1.0	Vont
25	17082.450	27.7	$^{+0.0}_{+2.1}$	+3.6 +39.2	+12.5 +1.4	-34.3 +0.0	+0.0	52.2	54.0	-1.8	Vert
	М		+2.1 +0.0			$\pm 0.0$					
26	9917.848M	39.0	+0.0 +0.0	+0.0 +2.7	+0.0 +9.1	-36.3	+0.0	52.2	54.0	-1.8	Vert
20	9917.848IVI	39.0	+0.0 $+1.5$	+2.7 +36.0	+9.1 +0.2	+0.0	$\pm 0.0$	32.2	34.0	-1.8	ven
			+1.3 $+0.0$	+30.0 $+0.0$	+0.2 $+0.0$	+0.0					
27	14876.840	31.0	+0.0	+3.4	+11.5	-35.1	+0.0	51.8	54.0	-2.2	Horiz
27	14870.840 M	31.0	+0.0 $+1.9$	+3.4 +38.8	+11.3 +0.3	+0.0	$\pm 0.0$	51.8	34.0	-2.2	HOLIZ
	1 <b>V1</b>		+0.0	+0.0	+0.3 $+0.0$	10.0					
20	7321.542M	44.3	+0.0	+2.4	+0.0 +7.8	-37.4	+0.0	51.7	54.0	-2.3	Horiz
28	/321.342101	44.3	+0.0 $+1.2$	+2.4 +33.2	+0.2	+0.0	$\pm 0.0$	51.7	54.0	-2.5	HOLIZ
			+1.2 $+0.0$	+33.2 $+0.0$	+0.2 +0.0	+0.0					
20	17082.220	27.2	+0.0	+3.6	+12.5	-34.3	+0.0	51.7	54.0	-2.3	Vert
29	M	21.2	+0.0 $+2.1$	+39.2	$^{+12.3}_{+1.4}$	-34.5 + 0.0	$\pm 0.0$	31.7	34.0	-2.3	ven
	1 <b>V1</b>		+0.0	+0.0	+0.0	10.0					
20	12202.470	41.0	+0.0	+0.0 +3.1	+10.4	-36.6	+0.0	51.7	54.0	-2.3	Vert
50	12202.470 M	41.0	+0.0 $+1.5$	+3.1 +35.7	+10.4 +0.2	+0.0	$\pm 0.0$	51.7	54.0	-2.5	vert
,	Ave		+0.0	+0.0	-3.6	10.0					
	9921.692M	38.4	+0.0	+0.0 +2.7	+9.1	-36.3	+0.0	51.5	54.0	-2.5	Horiz
51	9921.092IVI	30.4	+0.0 $+1.5$	+2.7 +36.0	+9.1 +0.1	+0.0	$\pm 0.0$	51.5	54.0	-2.3	HOLIZ
			+0.0	+0.0	+0.1 +0.0	10.0					
22	9617.847M	38.8	+0.0	+2.7	+9.0	-36.1	+0.0	51.5	54.0	-2.5	Vert
52	9017.047IVI	50.0	+0.0 +1.5	+35.6	+0.0	+0.0	10.0	51.5	54.0	-2.5	ven
			+0.0	+0.0	+0.0	10.0					
33	9917.795M	38.2	+0.0	+2.7	+9.1	-36.3	+0.0	51.4	54.0	-2.6	Vert
55	))11.1)5IVI	50.2	+1.5	+36.0	+0.2	+0.0	10.0	J1.7	54.0	-2.0	vert
			+0.0	+0.0	+0.0	0.0					
34	9617.850M	38.6	+0.0	+2.7	+9.0	-36.1	+0.0	51.3	54.0	-2.7	Vert
57	2017.020IVI	50.0	+0.0 +1.5	+35.6	+0.0	+0.0	0.0	51.5	54.0	2.1	vert
			+0.0	+0.0	+0.0	0.0					
35	9917.938M	38.0	+0.0	+2.7	+9.1	-36.3	+0.0	51.2	54.0	-2.8	Horiz
55	//1//////////	20.0		+36.0	+0.2		0.0	v 1.4	51.0	2.0	110112
			+0.0	+0.0	+0.2	0.0					
36	14882.400	30.3	+0.0	+3.4	+11.5	-35.1	+0.0	51.1	54.0	-2.9	Vert
20	M	20.2	+1.9	+38.8	+0.3	+0.0	0.0	v 1.1	21.0	<u> </u>	, 010
			+0.0	+0.0	+0.0	0.0					
37	9922.063M	38.0	+0.0	+2.7	+9.1	-36.3	+0.0	51.1	54.0	-2.9	Horiz
5,		20.0	+1.5	+36.0	+0.1	+0.0	0.0	e	20	,	110112
			+0.0	+0.0	+0.0						
38	9758.041M	38.3	+0.0	+2.6	+9.0	-36.4	+0.0	51.0	54.0	-3.0	Horiz
20		20.2	+1.5	+35.8	+0.2	+0.0	0.0	2 2.0	20	2.0	110112
			+0.0	+0.0	+0.0	0.0					
39	14644.930	29.9	+0.0	+3.3	+11.6	-35.2	+0.0	50.9	54.0	-3.1	Vert
	М	_/./	+1.8	+39.3	+0.2	+0.0	0.0	20.7	21.0	5.1	, 010
			+0.0	+0.0	+0.0	0.0					
I			5.0	0.0	0.0						



10	0(01.000)(	20.1		.0.7	10.0	26.1		50.0	54.0	2.2	<b>T</b> 7 /
40	9621.933M	38.1	+0.0	+2.7	+9.0	-36.1	+0.0	50.8	54.0	-3.2	Vert
			+1.5 +0.0	+35.6	+0.0	+0.0					
41	14877.130	29.9	+0.0 +0.0	+0.0 +3.4	+0.0 +11.5	-35.1	+0.0	50.7	54.0	-3.3	Horiz
41	14877.150 M	29.9	+0.0 $+1.9$	+3.4 +38.8	+11.3 +0.3	+0.0	$\pm 0.0$	30.7	54.0	-3.5	Horiz
	1 <b>v1</b>		+0.0	+0.0	+0.3 +0.0	10.0					
42	9621.742M	38.0	+0.0	+0.0	+9.0	-36.1	+0.0	50.7	54.0	-3.3	Vert
42	9021./42IVI	38.0	+1.5	+35.6	+9.0 +0.0	+0.0	10.0	30.7	54.0	-3.5	ven
			+0.0	+0.0	+0.0	10.0					
43	14642.700	29.6	+0.0	+3.3	+11.6	-35.2	+0.0	50.7	54.0	-3.3	Vert
-13	M	27.0	+1.8	+39.4	+0.2	+0.0	0.0	50.7	54.0	5.5	Vert
	111		+0.0	+0.0	+0.2	0.0					
44	12197.510	40.0	+0.0	+3.1	+10.4	-36.6	+0.0	50.7	54.0	-3.3	Vert
	M	+0.0	+1.5	+35.7	+0.2	+0.0	10.0	50.7	54.0	-5.5	vert
	Ave		+0.0	+0.0	-3.6	0.0					
	9917.893M	37.4	+0.0	+2.7	+9.1	-36.3	+0.0	50.6	54.0	-3.4	Vert
τJ	>>11.0 <b>)</b> 01 <b>1</b> 1	57.7	+1.5	+36.0	+0.2	+0.0	. 0.0	20.0	5 1.0	Э.т	, ert
			+0.0	+0.0	+0.0	0.0					
46	9917.742M	37.4	+0.0	+2.7	+9.1	-36.3	+0.0	50.6	54.0	-3.4	Vert
	<i>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</i>	27.1	+1.5	+36.0	+0.2	+0.0	0.0	00.0	0	5.1	
			+0.0	+0.0	+0.0						
47	9921.927M	37.4	+0.0	+2.7	+9.1	-36.3	+0.0	50.5	54.0	-3.5	Vert
			+1.5	+36.0	+0.1	+0.0					
			+0.0	+0.0	+0.0						
48	16839.070	27.2	+0.0	+3.6	+12.3	-34.5	+0.0	50.4	54.0	-3.6	Horiz
	М		+2.2	+38.4	+1.2	+0.0					
			+0.0	+0.0	+0.0						
49	9917.990M	37.1	+0.0	+2.7	+9.1	-36.3	+0.0	50.3	54.0	-3.7	Vert
			+1.5	+36.0	+0.2	+0.0					
			+0.0	+0.0	+0.0						
50	9761.925M	37.5	+0.0	+2.6	+9.0	-36.4	+0.0	50.2	54.0	-3.8	Vert
			+1.5	+35.8	+0.2	+0.0					
			+0.0	+0.0	+0.0						
51	9761.941M	37.5	+0.0	+2.6	+9.0	-36.4	+0.0	50.2	54.0	-3.8	Horiz
			+1.5	+35.8	+0.2	+0.0					
			+0.0	+0.0	+0.0						
52	9757.907M	37.4	+0.0	+2.6	+9.0	-36.4	+0.0	50.1	54.0	-3.9	Vert
				+35.8	+0.2	+0.0					
			+0.0	+0.0	+0.0						
53	9917.640M	36.8	+0.0	+2.7	+9.1	-36.3	+0.0	50.0	54.0	-4.0	Horiz
			+1.5	+36.0	+0.2	+0.0					
			+0.0	+0.0	+0.0		0.5	10.5			
54	9921.980M	36.8	+0.0	+2.7	+9.1	-36.3	+0.0	49.9	54.0	-4.1	Vert
			+1.5	+36.0	+0.1	+0.0					
	0.7 (0.077) (	27.2	+0.0	+0.0	+0.0	26.4		40.0	54.0		<b>T</b> 7 ·
55	9762.057M	37.2	+0.0	+2.6	+9.0	-36.4	+0.0	49.9	54.0	-4.1	Vert
			+1.5	+35.8	+0.2	+0.0					
	14(27 (00	20. (	+0.0	+0.0	+0.0	25.2		40.7	54.0	4.0	17 -
56	14637.600	28.6	+0.0	+3.3	+11.6	-35.2	+0.0	49.7	54.0	-4.3	Vert
	М		+1.8	+39.4	+0.2	+0.0					
<u> </u>			+0.0	+0.0	+0.0						



57	9921.680M	36.6	+0.0	+2.7	+9.1	-36.3	+0.0	49.7	54.0	-4.3	Vert
			+1.5	+36.0	+0.1	+0.0					
	<b>5010 0000 (</b>	40.0	+0.0	+0.0	+0.0	27.4		10 -	54.0	1.0	<b>T T</b> .
58	7318.208M	42.3	+0.0	+2.4	+7.8	-37.4	+0.0	49.7	54.0	-4.3	Vert
			+1.2	+33.2	+0.2	+0.0					
	0.555.500.00	25.0	+0.0	+0.0	+0.0	264		10 -	54.0		<b>.</b>
59	9757.783M	37.0	+0.0	+2.6	+9.0	-36.4	+0.0	49.7	54.0	-4.3	Vert
			+1.5	+35.8	+0.2	+0.0					
(0)	0(01.070)(	26.0	+0.0	+0.0	+0.0	26.1		10.5	54.0	4.5	<b>X</b> 7 /
60	9621.870M	36.8	+0.0	+2.7	+9.0	-36.1	+0.0	49.5	54.0	-4.5	Vert
			+1.5	+35.6	+0.0	+0.0					
(1	10005.050	20.0	+0.0	+0.0	+0.0	26.5		10.1	54.0	1.6	
61	12027.370	38.8	+0.0	+3.1	+10.4	-36.5	+0.0	49.4	54.0	-4.6	Horiz
	М		+1.5	+35.6	+0.1	+0.0					
	Ave	45.0	+0.0	+0.0	-3.6	26.5		(0.1	54.0	1	
~	12027.370	45.9	+0.0	+3.1	+10.4	-36.5	+0.0	60.1	54.0	+6.1	Horiz
	М		+1.5	+35.6	+0.1	+0.0					
	10005 450	15.0	+0.0	+0.0	+0.0	26.5		(0.1	54.0	1	
~	12027.450	45.9	+0.0	+3.1	+10.4	-36.5	+0.0	60.1	54.0	+6.1	Horiz
	М		+1.5	+35.6	+0.1	+0.0					
	10005 400		+0.0	+0.0	+0.0	26.5		<b>5</b> 0 (	54.0		
~	12027.400	45.4	+0.0	+3.1	+10.4	-36.5	+0.0	59.6	54.0	+5.6	Horiz
	М		+1.5	+35.6	+0.1	+0.0					
	10005 450	45.0	+0.0	+0.0	+0.0	26.5		<b>50 0</b>	54.0		
~	12027.450	45.0	+0.0	+3.1	+10.4	-36.5	+0.0	59.2	54.0	+5.2	Horiz
	М		+1.5	+35.6	+0.1	+0.0					
	10007.000	44.0	+0.0	+0.0	+0.0	26.5		50.0	54.0		TT '
^	12027.330	44.8	+0.0	+3.1	+10.4	-36.5	+0.0	59.0	54.0	+5.0	Horiz
	М		+1.5	+35.6	+0.1	+0.0					
	12027.260	41.0	+0.0	+0.0	+0.0	265		5(1	54.0	+0.1	Hamin
	12027.360	41.9	+0.0	+3.1	+10.4	-36.5	+0.0	56.1	54.0	+2.1	Horiz
	М		$^{+1.5}_{+0.0}$	+35.6	+0.1	+0.0					
(0	12027 450	20.7		+0.0	+0.0	265		40.2	54.0	47	II.
68	12027.450 M	38.7	+0.0 +1.5	+3.1 +35.6	$^{+10.4}_{+0.1}$	-36.5 +0.0	+0.0	49.3	54.0	-4.7	Horiz
						$\pm 0.0$					
	Ave 12022.320	38.7	+0.0 +0.0	+0.0 +3.1	-3.6	-36.5	+0.0	49.3	54.0	-4.7	Uaria
	12022.320 M	30.1		+3.1 +35.6		-30.3 + 0.0	+0.0	47.3	54.0	-4./	Horiz
	Ave		+1.3 $+0.0$	+33.0 +0.0	-3.6	10.0					
^		46.1	+0.0	+0.0 +3.1	+10.4	-36.5	+0.0	60.3	54.0	+6.3	Horiz
	12022.290 M	40.1	+0.0 $+1.5$	+3.1 +35.6	+10.4 +0.1	+0.0	0.0	00.5	54.0	+0.5	TIOUZ
	171		+1.3 $+0.0$	+33.0 +0.0	+0.1 +0.0	0.0					
^	12022.370	45.9	+0.0	+3.1	+10.4	-36.5	+0.0	60.1	54.0	+6.1	Horiz
	12022.370 M	-13.7	+0.0 +1.5	+3.1 +35.6	+10.4 +0.1	+0.0	0.0	00.1	57.0	0.1	TIOUIZ
	141		+0.0	+0.0	+0.1 +0.0	0.0					
^	12022.320	45.8	+0.0	+3.1	+10.4	-36.5	+0.0	60.0	54.0	+6.0	Horiz
	12022.320 M	-J.0	+1.5	+3.1 +35.6	+10.4 +0.1	+0.0	0.0	00.0	54.0	0.0	110112
	141		+0.0	+0.0	+0.1 +0.0	0.0					
^	12022.330	45.5	+0.0	+3.1	+10.4	-36.5	+0.0	59.7	54.0	+5.7	Horiz
	12022.330 M	- <b>T</b> J.J	+1.5	+3.1 +35.6	+10.4 +0.1	+0.0	0.0	59.1	57.0	5.1	TIOUIZ
	141		+0.0	+0.0	+0.1 +0.0	0.0					
L			0.0	0.0	0.0						



^ 12022.330	44.4	+0.0	+3.1	+10.4	-36.5	+0.0	58.6	54.0	+4.6	Horiz
M	44.4	+0.0 +1.5	+3.1 +35.6	+10.4 +0.1	+0.0	10.0	38.0	54.0	14.0	TIOTIZ
111		+0.0	+0.0	+0.0	10.0					
^ 12022.260	41.8	+0.0	+3.1	+10.4	-36.5	+0.0	56.0	54.0	+2.0	Horiz
M		+1.5	+35.6	+0.1	+0.0	0.0	00.0	0		TIOTIL
		+0.0	+0.0	+0.0						
76 12022.290	38.7	+0.0	+3.1	+10.4	-36.5	+0.0	49.3	54.0	-4.7	Horiz
М		+1.5	+35.6	+0.1	+0.0					
Ave		+0.0	+0.0	-3.6						
77 9761.863M	36.6	+0.0	+2.6	+9.0	-36.4	+0.0	49.3	54.0	-4.7	Horiz
		+1.5	+35.8	+0.2	+0.0					
		+0.0	+0.0	+0.0						
78 9757.740M	36.4	+0.0	+2.6	+9.0	-36.4	+0.0	49.1	54.0	-4.9	Vert
		+1.5	+35.8	+0.2	+0.0					
		+0.0	+0.0	+0.0						
79 7213.417M	45.0	+0.0	+2.4	+7.8	-37.0	+0.0	49.1	54.0	-4.9	Vert
Ave		+1.2	+33.1	+0.2	+0.0					
		+0.0	+0.0	-3.6						
80 7441.413M	41.8	+0.0	+2.4	+7.8	-37.5	+0.0	49.0	54.0	-5.0	Horiz
Ave		+1.2	+33.2	+0.1	+0.0					
		+0.0	+0.0	+0.0						
^ 7441.413M	49.1	+0.0	+2.4	+7.8	-37.5	+0.0	56.3	54.0	+2.3	Horiz
		+1.2	+33.2	+0.1	+0.0					
		+0.0	+0.0	+0.0						
^ 7441.367M	47.0	+0.0	+2.4	+7.8	-37.5	+0.0	54.2	54.0	+0.2	Horiz
		+1.2	+33.2	+0.1	+0.0					
∧ 7441 422M	46.2	+0.0	+0.0	+0.0	275		52.4	54.0	0.6	Hamin
^ 7441.422M	46.2	$^{+0.0}_{+1.2}$	+2.4 +33.2	+7.8 +0.1	-37.5 +0.0	+0.0	53.4	54.0	-0.6	Horiz
		+0.0	+0.0	+0.1 +0.0	10.0					
^ 7441.465M	46.2	+0.0	+2.4	+7.8	-37.5	+0.0	53.4	54.0	-0.6	Horiz
/441.403101	40.2	+1.2	+33.2	+0.1	+0.0	10.0	55.4	54.0	-0.0	TIOTIZ
		+0.0	+0.0	+0.0	10.0					
^ 7441.425M	45.5	+0.0	+2.4	+7.8	-37.5	+0.0	52.7	54.0	-1.3	Horiz
/ ++1.+2.5111	75.5	+1.2	+33.2	+0.1	+0.0	0.0	52.7	54.0	1.5	TIONZ
		+0.0	+0.0	+0.0	0.0					
^ 7441.440M	44.1	+0.0	+2.4	+7.8	-37.5	+0.0	51.3	54.0	-2.7	Horiz
,		+1.2	+33.2	+0.1		0.0	0 1.0	2 1.0	,	
		+0.0	+0.0	+0.0						
87 9761.667M	36.3	+0.0	+2.6	+9.0	-36.4	+0.0	49.0	54.0	-5.0	Horiz
		+1.5	+35.8	+0.2	+0.0					
		+0.0	+0.0	+0.0						
88 9757.918M	36.3	+0.0	+2.6	+9.0	-36.4	+0.0	49.0	54.0	-5.0	Horiz
		+1.5	+35.8	+0.2	+0.0					
		+0.0	+0.0	+0.0						
89 9917.813M	35.7	+0.0	+2.7	+9.1	-36.3	+0.0	48.9	54.0	-5.1	Horiz
Ave		+1.5	+36.0	+0.2	+0.0					
		+0.0	+0.0	+0.0						
^ 9917.813M	43.7	+0.0	+2.7	+9.1	-36.3	+0.0	56.9	54.0	+2.9	Horiz
		+1.5	+36.0	+0.2	+0.0					
		+0.0	+0.0	+0.0						



A 0017 01015	40.1		107	10.1	26.2		52.2	54.0	0.7	п. '
^ 9917.810M	40.1	+0.0	+2.7	+9.1	-36.3	+0.0	53.3	54.0	-0.7	Horiz
		+1.5	+36.0	+0.2	+0.0					
△ 0017 000M	27.2	+0.0	+0.0	+0.0	26.2		50.5	54.0	2.5	Hanin
^ 9917.808M	37.3	+0.0	+2.7	+9.1	-36.3	+0.0	50.5	54.0	-3.5	Horiz
		+1.5	+36.0	+0.2	+0.0					
02 12027 200	20.2	+0.0	+0.0	+0.0	265		49.0	54.0	5 1	Harin
93 12027.200	38.3	$^{+0.0}_{+1.5}$	+3.1 +35.6	+10.4	-36.5 +0.0	+0.0	48.9	54.0	-5.1	Horiz
M		+1.3 $+0.0$		+0.1	$\pm 0.0$					
Ave ^ 12027.200	46.2	+0.0 +0.0	+0.0 +3.1	-3.6	-36.5	+0.0	60.4	54.0	+6.4	Horiz
M	40.2	+0.0 $+1.5$	+3.1+35.6	+10.4 +0.1	+0.0	$\pm 0.0$	00.4	34.0	+0.4	Horiz
IVI		+1.3 $+0.0$		+0.1 +0.0	$\pm 0.0$					
05 172(2.2(0	22.1		+0.0		-34.2	+0.0	49.0	54.0	5 1	Vort
95 17363.360	23.1	+0.0	+3.7	+12.7		+0.0	48.9	54.0	-5.1	Vert
M		+1.9	+40.0	+1.7	+0.0					
Ave	21.4	+0.0	+0.0	+0.0	24.2		57.0	54.0	12.2	Vant
^ 17363.350	31.4	+0.0	+3.7	+12.7	-34.2	+0.0	57.2	54.0	+3.2	Vert
М		+1.9	+40.0	+1.7	+0.0					
07 10000 220	20.2	+0.0	+0.0	+0.0	265		40.0	54.0	<b>5</b> 1	Vant
97 12022.330	38.3	+0.0	+3.1	+10.4	-36.5	+0.0	48.9	54.0	-5.1	Vert
М		+1.5	+35.6	+0.1	+0.0					
Ave	50.0	+0.0	+0.0	-3.6	26.5		(5.0	54.0	+ 1 1 0	<b>N</b> 7 (
^ 12022.420	50.8	+0.0	+3.1	+10.4	-36.5	+0.0	65.0	54.0	+11.0	Vert
М		+1.5	+35.6	+0.1	+0.0					
12022 220	45 4	+0.0	+0.0	+0.0	26.5		50 C	54.0	15.6	<b>N</b> 7 (
^ 12022.330	45.4	+0.0	+3.1	+10.4	-36.5	+0.0	59.6	54.0	+5.6	Vert
Μ		+1.5	+35.6	+0.1	+0.0					
A 12022 210	44.2	+0.0	+0.0	+0.0	265		50 /	54.0	1 4 4	Vort
^ 12022.310	44.2	$^{+0.0}_{+1.5}$	+3.1 +35.6	$^{+10.4}_{+0.1}$	-36.5 +0.0	+0.0	58.4	54.0	+4.4	Vert
Μ		+1.3 $+0.0$		+0.1 +0.0	$\pm 0.0$					
^ 12022.330	44.2		+0.0 +3.1		-36.5	+0.0	58.4	54.0	+4.4	Vort
M	44.2	$^{+0.0}_{+1.5}$	+3.1 +35.6	$^{+10.4}_{+0.1}$	+0.0	$\pm 0.0$	38.4	34.0	<b>⊤4.4</b>	Vert
IVI		+1.3 $+0.0$		+0.1 +0.0	$\pm 0.0$					
^ 12022.250	42.9	+0.0 +0.0	+0.0 +3.1	+0.0 +10.4	-36.5	+0.0	57.1	54.0	+3.1	Vort
M	42.9	+0.0 $+1.5$	+3.1 +35.6	+10.4 +0.1	+0.0	$\pm 0.0$	37.1	34.0	±3.1	Vert
101		+0.0		+0.1 +0.0	10.0					
^ 12022.320	41.9	+0.0 +0.0	+0.0 +3.1	+0.0 +10.4	36.5	+0.0	56.1	54.0	+2.1	Vert
M	41.7		+3.1 +35.6			10.0	50.1	54.0	12.1	veit
1 <b>V1</b>		+1.3 $+0.0$	+33.0 +0.0	+0.1 +0.0	0.0					
104 7216.417M	44.8	+0.0	+2.4	+7.8	-37.0	+0.0	48.9	54.0	-5.1	Vert
Ave	<del>44</del> .0	+0.0 $+1.2$	+2.4 +33.1	+7.8 +0.2	+0.0	10.0	40.7	54.0	-3.1	vert
πνυ		+1.2 $+0.0$	+33.1 +0.0	-3.6	0.0					
105 9757.980M	36.2	+0.0	+0.0 +2.6	+9.0	-36.4	+0.0	48.9	54.0	-5.1	Vert
105 7757.70011	50.2	+0.0 $+1.5$	+2.0 +35.8	+9.0 +0.2	+0.0	10.0	40.7	54.0	-3.1	vert
		+0.0	+0.0	+0.2 +0.0	0.0					
106 9921.938M	35.7	+0.0	+2.7	+9.1	-36.3	+0.0	48.8	54.0	-5.2	Horiz
Ave	55.1	+0.0 $+1.5$	+2.7 +36.0	+9.1 +0.1	+0.0	10.0	40.0	54.0	-3.2	TIOUZ
AVV		+1.3 $+0.0$	+30.0 +0.0	+0.1 +0.0	0.0					
^ 9921.938M	43.4	+0.0	+2.7	+9.1	-36.3	+0.0	56.5	54.0	+2.5	Horiz
7721.730IVI	43.4	+0.0 $+1.5$	+2.7 +36.0	+9.1 +0.1	+0.0	10.0	50.5	54.0	12.3	HOHZ
		+1.5 +0.0	+36.0 +0.0	+0.1 +0.0	+0.0					
		10.0	10.0	0.0						



	10.0									
^ 9921.860M	40.0	+0.0	+2.7	+9.1	-36.3	+0.0	53.1	54.0	-0.9	Horiz
		+1.5	+36.0	+0.1	+0.0					
△ 0021 020M	35.7	+0.0 +0.0	+0.0 +2.7	+0.0 +9.1	-36.3	+0.0	48.8	54.0	-5.2	Horiz
^ 9921.920M	55.7	+0.0 $+1.5$	+2.7 +36.0	+9.1 +0.1	+0.0	$\pm 0.0$	40.0	54.0	-3.2	Horiz
		+0.0	+0.0	+0.1 +0.0	10.0					
110 9761.867M	36.0	+0.0	+2.6	+9.0	-36.4	+0.0	48.7	54.0	-5.3	Vert
110 9/01.00/101	50.0	+1.5	+35.8	+0.2	+0.0	10.0	40.7	54.0	-5.5	ven
		+0.0	+0.0	+0.0	0.0					
111 9757.783M	36.0	+0.0	+2.6	+9.0	-36.4	+0.0	48.7	54.0	-5.3	Horiz
111 9707.700101	50.0	+1.5	+35.8	+0.2	+0.0	0.0	10.7	5 1.0	0.5	110112
		+0.0	+0.0	+0.0						
112 17356.220	22.9	+0.0	+3.7	+12.7	-34.2	+0.0	48.7	54.0	-5.3	Vert
М		+1.9	+40.0	+1.7	+0.0					
Ave		+0.0	+0.0	+0.0						
113 14875.760	27.8	+0.0	+3.4	+11.5	-35.1	+0.0	48.6	54.0	-5.4	Horiz
М		+1.9	+38.8	+0.3	+0.0					
		+0.0	+0.0	+0.0						
114 17076.680	27.7	+0.0	+3.6	+12.5	-34.3	+0.0	48.6	54.0	-5.4	Vert
М		+2.1	+39.2	+1.4	+0.0					
Ave		+0.0	+0.0	-3.6						
^ 17076.680	29.7	+0.0	+3.6	+12.5	-34.3	+0.0	54.2	54.0	+0.2	Vert
М		+2.1	+39.2	+1.4	+0.0					
		+0.0	+0.0	+0.0						
116 17075.780	27.7	+0.0	+3.6	+12.5	-34.3	+0.0	48.6	54.0	-5.4	Vert
М		+2.1	+39.2	+1.4	+0.0					
Ave		+0.0	+0.0	-3.6						
^ 17075.780	29.6	+0.0	+3.6	+12.5	-34.3	+0.0	54.1	54.0	+0.1	Vert
М		+2.1	+39.2	+1.4	+0.0					
		+0.0	+0.0	+0.0			10.6			
118 12027.410	38.0	+0.0	+3.1	+10.4	-36.5	+0.0	48.6	54.0	-5.4	Vert
М		+1.5	+35.6	+0.1	+0.0					
Ave	40.0	+0.0	+0.0	-3.6	26.5		(2.1	54.0	+0.1	<b>X</b> 7 4
^ 12027.400	48.9	+0.0	+3.1	+10.4	-36.5	+0.0	63.1	54.0	+9.1	Vert
М		$^{+1.5}_{+0.0}$	+35.6	+0.1	+0.0					
^ 12027.410	45.4	+0.0 +0.0	+0.0 +3.1	+0.0 +10.4	-36.5	+0.0	59.6	54.0	+5.6	Vort
M 12027.410	45.4		+3.1 +35.6			+0.0	39.0	54.0	+3.0	Vert
IVI		+1.3 $+0.0$	+33.0 +0.0	+0.1 +0.0	$\pm 0.0$					
^ 12027.420	44.4	+0.0 +0.0	+0.0 +3.1	+0.0 +10.4	-36.5	+0.0	58.6	54.0	+4.6	Vert
M	44.4	+0.0 $+1.5$	+3.1	+10.4 +0.1	+0.0	10.0	50.0	54.0	14.0	veit
141		+1.3 $+0.0$	+33.0 +0.0	+0.1 +0.0	0.0					
^ 12027.380	44.3	+0.0	+3.1	+10.4	-36.5	+0.0	58.5	54.0	+4.5	Vert
M	-1.5	+1.5	+35.6	+0.1	+0.0	0.0	50.5	J-1.0	· T.J	vert
171		+0.0	+0.0	+0.0	0.0					
^ 12027.370	43.6	+0.0	+3.1	+10.4	-36.5	+0.0	57.8	54.0	+3.8	Vert
M	15.0	+1.5	+35.6	+0.1	+0.0	. 0.0	57.0	J 1.0	. 5.0	, 011
171		+0.0	+0.0	+0.0	0.0					
^ 12027.370	42.1	+0.0	+3.1	+10.4	-36.5	+0.0	56.3	54.0	+2.3	Vert
M	12.1	+1.5	+35.6	+0.1	+0.0		20.5	21.0	. 2.3	, 010
171		+0.0	+0.0	+0.0	0.0					
		0.0	0.0	0.0						



105 07(0.000)5	25.0		10.0		26.4		40.7	54.0	<i>с</i> 4	
125 9762.030M	35.9	+0.0	+2.6	+9.0	-36.4	+0.0	48.6	54.0	-5.4	Horiz
		+1.5 +0.0	+35.8	+0.2 +0.0	+0.0					
126 0021 047M	25.2	+0.0 +0.0	+0.0 +2.7	+0.0 +9.1	-36.3	+0.0	10 1	54.0	-5.6	Vort
126 9921.947M	35.3	+0.0 $+1.5$	+2.7 +36.0	+9.1 +0.1	+0.0	$\pm 0.0$	48.4	54.0	-3.0	Vert
		+0.0	+0.0	+0.1 +0.0	10.0					
127 12022.370	37.8	+0.0	+3.1	+10.4	-36.5	+0.0	48.4	54.0	-5.6	Horiz
127 12022.370 M	57.0	+1.5	+3.1 +35.6	+10.4 +0.1	+0.0	10.0	40.4	54.0	-5.0	TIOTIZ
Ave		+0.0	+0.0	-3.6	10.0					
128 7318.617M	41.0	+0.0	+0.0	+7.8	-37.4	+0.0	48.4	54.0	-5.6	Vert
120 / 510.01/101	41.0	+1.2	+33.2	+0.2	+0.0	0.0	-10.7	54.0	5.0	ven
		+0.0	+0.0	+0.0	0.0					
129 9761.870M	35.6	+0.0	+2.6	+9.0	-36.4	+0.0	48.3	54.0	-5.7	Vert
129 9701.070101	55.0	+1.5	+35.8	+0.2	+0.0	0.0	10.5	51.0	5.7	vent
		+0.0	+0.0	+0.0	0.0					
130 9621.965M	35.5	+0.0	+2.7	+9.0	-36.1	+0.0	48.2	54.0	-5.8	Horiz
		+1.5	+35.6	+0.0	+0.0					
		+0.0	+0.0	+0.0						
131 9617.842M	35.5	+0.0	+2.7	+9.0	-36.1	+0.0	48.2	54.0	-5.8	Vert
		+1.5	+35.6	+0.0	+0.0					
		+0.0	+0.0	+0.0						
132 12022.330	37.6	+0.0	+3.1	+10.4	-36.5	+0.0	48.2	54.0	-5.8	Horiz
М		+1.5	+35.6	+0.1	+0.0					
Ave		+0.0	+0.0	-3.6						
133 12197.380	33.9	+0.0	+3.1	+10.4	-36.6	+0.0	48.2	54.0	-5.8	Horiz
М		+1.5	+35.7	+0.2	+0.0					
Ave		+0.0	+0.0	+0.0						
^ 12197.290	44.1	+0.0	+3.1	+10.4	-36.6	+0.0	58.4	54.0	+4.4	Horiz
М		+1.5	+35.7	+0.2	+0.0					
		+0.0	+0.0	+0.0						
^ 12197.310	43.3	+0.0	+3.1	+10.4	-36.6	+0.0	57.6	54.0	+3.6	Horiz
М		+1.5	+35.7	+0.2	+0.0					
		+0.0	+0.0	+0.0						
^ 12197.380	42.3	+0.0	+3.1	+10.4	-36.6	+0.0	56.6	54.0	+2.6	Horiz
М		+1.5	+35.7	+0.2	+0.0					
10105 000	44.4	+0.0	+0.0	+0.0	26.6			54.0	. 1 4	
^ 12197.320	41.1	+0.0	+3.1	+10.4	-36.6	+0.0	55.4	54.0	+1.4	Horiz
М			+35.7		+0.0					
120 12027 400	27.6	+0.0	+0.0	+0.0	265		40.2	54.0	<i>E</i> 0	TT'
138 12027.400	37.6	+0.0	+3.1	+10.4	-36.5	+0.0	48.2	54.0	-5.8	Horiz
M		$^{+1.5}_{+0.0}$	+35.6	+0.1	+0.0					
Ave	22.4		+0.0 +3.7	-3.6	-34.2	+0.0	48.2	54.0	50	Uoria
139 17363.250 M	22.4	$^{+0.0}_{+1.9}$	+3.7 +40.0	$^{+12.7}_{-1.7}$	-34.2 +0.0	+0.0	40.2	54.0	-5.8	Horiz
Ave		+1.9 $+0.0$	+40.0 +0.0	+1.7 +0.0	$\pm 0.0$					
^ 17363.250	32.4	+0.0 +0.0	+0.0 +3.7	+0.0 +12.7	-34.2	+0.0	58.2	54.0	+4.2	Horiz
M 17363.250	52.4	+0.0 +1.9	+3.7 +40.0	$^{+12.7}_{+1.7}$	-34.2 +0.0	+0.0	30.2	54.0	<b>⊤4.</b> ∠	HULLZ
171		+1.9 $+0.0$	+40.0 +0.0	+1.7 +0.0	10.0					
141 7321.430M	40.7	+0.0	+2.4	+7.8	-37.4	+0.0	48.1	54.0	-5.9	Horiz
Ave	40.7	+0.0 $+1.2$	+2.4 +33.2	+7.8 +0.2	+0.0	10.0	40.1	54.0	-3.9	TIOUZ
Ανυ		+1.2 $+0.0$	+33.2 +0.0	+0.2 +0.0	0.0					
		0.0	10.0	0.0						



142 12027.450	37.5		+3.1	10.4	26.5		10 1	54.0	-5.9	Horiz
142 12027.450 M	57.5	$^{+0.0}_{+1.5}$	+3.1 +35.6	$^{+10.4}_{+0.1}$	-36.5 +0.0	+0.0	48.1	54.0	-5.9	Horiz
Ave		+0.0	+0.0	-3.6	10.0					
143 9922.090M	35.0	+0.0	+0.0	+9.1	-36.3	+0.0	48.1	54.0	-5.9	Horiz
145 9922.090WI	55.0	+1.5	+36.0	+0.1	+0.0	10.0	40.1	54.0	-5.9	TIOTIZ
		+0.0	+0.0	+0.0	0.0					
144 12402.460	33.1	+0.0	+3.2	+10.5	-36.5	+0.0	48.0	54.0	-6.0	Vert
M	55.1	+1.5	+35.8	+0.4	+0.0	0.0	10.0	5 1.0	0.0	vert
Ave		+0.0	+0.0	+0.0						
^ 12402.430	48.5	+0.0	+3.2	+10.5	-36.5	+0.0	63.4	54.0	+9.4	Vert
М		+1.5	+35.8	+0.4	+0.0					
		+0.0	+0.0	+0.0						
^ 12402.390	42.9	+0.0	+3.2	+10.5	-36.5	+0.0	57.8	54.0	+3.8	Vert
М		+1.5	+35.8	+0.4	+0.0					
		+0.0	+0.0	+0.0						
^ 12402.460	40.7	+0.0	+3.2	+10.5	-36.5	+0.0	55.6	54.0	+1.6	Vert
М		+1.5	+35.8	+0.4	+0.0					
		+0.0	+0.0	+0.0						
^ 12402.400	38.8	+0.0	+3.2	+10.5	-36.5	+0.0	53.7	54.0	-0.3	Vert
М		+1.5	+35.8	+0.4	+0.0					
		+0.0	+0.0	+0.0						
149 12397.420	33.1	+0.0	+3.2	+10.5	-36.5	+0.0	48.0	54.0	-6.0	Vert
М		+1.5	+35.8	+0.4	+0.0					
Ave		+0.0	+0.0	+0.0						
^ 12397.350	42.8	+0.0	+3.2	+10.5	-36.5	+0.0	57.7	54.0	+3.7	Vert
М		+1.5	+35.8	+0.4	+0.0					
10007 400	41.0	+0.0	+0.0	+0.0	26.5		56.0	54.0	10.0	<b>X</b> 7 /
^ 12397.420	41.3	+0.0	+3.2	+10.5	-36.5	+0.0	56.2	54.0	+2.2	Vert
М		+1.5	+35.8	+0.4	+0.0					
152 14636.830	26.9	+0.0 +0.0	+0.0 +3.3	+0.0 +11.6	-35.2	+0.0	48.0	54.0	-6.0	Horiz
152 14050.850 M	20.9	+0.0 $+1.8$	+39.4	+11.0 +0.2	+0.0	$\pm 0.0$	48.0	34.0	-0.0	Horiz
Ave		+0.0	+0.0	+0.2 +0.0	10.0					
153 7216.448M	43.9	+0.0	+0.0	+7.8	-37.0	+0.0	48.0	54.0	-6.0	Horiz
Ave	-+J.7	+0.0 $+1.2$	+2.4 +33.1	+0.2	+0.0	0.0	0.0	J+.0	-0.0	TIOUZ
1110		+0.0	+0.0	-3.6	0.0					
154 9621.856M	38.8	+0.0	+0.0	+9.0	-36.1	+0.0	47.9	54.0	-6.1	Horiz
Ave	20.0		+35.6		+0.0	0.0		2 1.0	0.1	110112
		+0.0	+0.0	-3.6						
^ 9621.925M	40.7	+0.0	+2.7	+9.0	-36.1	+0.0	53.4	54.0	-0.6	Horiz
		+1.5	+35.6	+0.0	+0.0		• •			
		+0.0	+0.0	+0.0						
^ 9621.896M	38.9	+0.0	+2.7	+9.0	-36.1	+0.0	51.6	54.0	-2.4	Horiz
		+1.5	+35.6	+0.0	+0.0					
		+0.0	+0.0	+0.0						
^ 9621.925M	37.5	+0.0	+2.7	+9.0	-36.1	+0.0	50.2	54.0	-3.8	Horiz
		+1.5	+35.6	+0.0	+0.0					
		+0.0	+0.0	+0.0						
158 17076.330	27.0	+0.0	+3.6	+12.5	-34.3	+0.0	47.9	54.0	-6.1	Horiz
М		+2.1	+39.2	+1.4	+0.0					
Ave		+0.0	+0.0	-3.6						



A 1707( 220	25.0		12.6	10.5	24.2		(0.4	54.0	16.4	TT ·
^ 17076.330	35.9	+0.0	+3.6	+12.5	-34.3	+0.0	60.4	54.0	+6.4	Horiz
М		+2.1	+39.2	+1.4	+0.0					
△ 1707C 200	32.9	+0.0	+0.0	+0.0	-34.3		57 1	54.0	12.4	Hamin
^ 17076.300 M	32.9	$^{+0.0}_{+2.1}$	+3.6 +39.2	+12.5 +1.4	-34.3 + 0.0	+0.0	57.4	54.0	+3.4	Horiz
IVI		+2.1 +0.0	+39.2 $+0.0$	+1.4 +0.0	$\pm 0.0$					
^ 17076.270	30.4	+0.0	+3.6	+12.5	-34.3	+0.0	54.9	54.0	+0.9	Horiz
M	30.4	+0.0 $+2.1$	+3.0 +39.2	$^{+12.3}_{+1.4}$	+0.0	$\pm 0.0$	54.9	54.0	+0.9	HOLIZ
141		+0.0	+0.0	+0.0	10.0					
162 21955.100	46.4	+0.0	+0.0	+0.0	-33.2	-9.5	47.9	54.0	-6.1	Vert
M	40.4	+2.3	+0.0	+0.0	+40.5	-9.5	47.7	54.0	-0.1	ven
IVI		+2.3 $+1.4$	+0.0	+0.0	40.5					
163 9757.866M	35.2	+0.0	+2.6	+9.0	-36.4	+0.0	47.9	54.0	-6.1	Vert
105 9757.000101	55.2	+0.0 $+1.5$	+2.0 +35.8	+9.0 +0.2	+0.0	$\pm 0.0$	47.9	54.0	-0.1	Vert
		+0.0	+0.0	+0.2 $+0.0$	10.0					
164 7213.423M	43.8	+0.0	+2.4	+0.0 +7.8	-37.0	+0.0	47.9	54.0	-6.1	Horiz
Ave	43.8	+0.0 $+1.2$	+2.4 +33.1	+7.8 +0.2	+0.0	$\pm 0.0$	47.9	34.0	-0.1	HOLIZ
Ave		+0.0	+0.0	-3.6	10.0					
165 17083.480	27.0	+0.0	+3.6	+12.5	-34.3	+0.0	47.9	54.0	-6.1	Horiz
103 17083.480 M	27.0	+0.0 $+2.1$	+3.0 +39.2	$^{+12.3}_{+1.4}$	-34.3 +0.0	$\pm 0.0$	47.9	34.0	-0.1	HOLIZ
Ave		+2.1 +0.0	+0.0	-3.6	10.0					
^ 17083.480	35.4	+0.0	+3.6	+12.5	-34.3	+0.0	59.9	54.0	+5.9	Horiz
M	55.4	+0.0 $+2.1$	+3.0 +39.2	$^{+12.3}_{+1.4}$	-34.3 +0.0	$\pm 0.0$	39.9	34.0	+3.9	HOLIZ
IVI		+2.1 +0.0	+39.2 $+0.0$	+1.4 $+0.0$	$\pm 0.0$					
^ 17083.430	32.5	+0.0	+3.6	+12.5	-34.3	+0.0	57.0	54.0	+3.0	Horiz
M	32.3	+0.0 $+2.1$	+3.0 +39.2	+12.3 $+1.4$	-34.3 +0.0	$\pm 0.0$	37.0	34.0	+3.0	Horiz
IVI		+2.1 +0.0	+0.0	+0.0	10.0					
168 12022.330	37.2	+0.0	+3.1	+10.0	-36.5	+0.0	47.8	54.0	-6.2	Horiz
M	57.2	+0.0 $+1.5$	+3.1 +35.6	+10.4 +0.1	+0.0	$\pm 0.0$	47.0	54.0	-0.2	HOLIZ
Ave		+0.0	+0.0	-3.6	10.0					
169 17083.300	23.3	+0.0	+3.6	+12.5	-34.3	+0.0	47.8	54.0	-6.2	Horiz
M	23.5	+2.1	+39.2	+1.4	+0.0	10.0	47.0	54.0	-0.2	TIOTIZ
Ave		+0.0	+0.0	+0.0	0.0					
^ 17083.300	32.4	+0.0	+3.6	+12.5	-34.3	+0.0	56.9	54.0	+2.9	Horiz
M	52.4	+0.0 +2.1	+39.2	+1.4	+0.0	10.0	50.9	54.0	12.9	TIOTIZ
171		+0.0	+0.0	+0.0	0.0					
171 12027.330	37.2	+0.0	+3.1	+10.4	-36.5	+0.0	47.8	54.0	-6.2	Horiz
M	51.2		+35.6			0.0	17.0	54.0	0.2	TIOUL
Ave		+0.0	+0.0	-3.6	0.0					
172 17076.330	23.3	+0.0	+3.6	+12.5	-34.3	+0.0	47.8	54.0	-6.2	Vert
M	23.5	+2.1	+39.2	+1.4	+0.0	. 0.0	17.0	5 1.0	0.2	, 011
Ave		+0.0	+0.0	+0.0	.0.0					
^ 17076.330	33.7	+0.0	+3.6	+12.5	-34.3	+0.0	58.2	54.0	+4.2	Vert
M	55.1	+2.1	+39.2	+1.4	+0.0	0.0	20.2	51.0		1011
		+0.0	+0.0	+0.0	0.0					
174 12027.420	37.1	+0.0	+3.1	+10.4	-36.5	+0.0	47.7	54.0	-6.3	Vert
M	57.1	+0.0 +1.5	+35.6	+0.1	+0.0	. 0.0	• / • /	5 1.0	0.5	, 011
Ave		+0.0	+0.0	-3.6	0.0					
175 17083.430	23.2	+0.0	+3.6	+12.5	-34.3	+0.0	47.7	54.0	-6.3	Vert
M	23.2	+0.0 +2.1	+39.2	+1.4	+0.0	. 0.0	• / • /	5 1.0	0.5	, 011
Ave		+0.0	+0.0	+0.0	. 0.0					
			0.0	0.0						



∧ 17002 420	22.0		12 (	105	24.2		57.2	54.0	12.2	Vari
^ 17083.430 M	32.8	+0.0 +2.1	+3.6 +39.2	$^{+12.5}_{+1.4}$	-34.3 +0.0	+0.0	57.3	54.0	+3.3	Vert
IVI		+2.1 +0.0	+39.2 +0.0	+1.4 +0.0	+0.0					
^ 17083.360	29.6	+0.0	+3.6	+12.5	-34.3	+0.0	54.1	54.0	+0.1	Vert
M	29.0	+0.0 $+2.1$	+39.2	+12.3	+0.0	10.0	54.1	54.0	10.1	ven
101		+0.0	+0.0	+0.0	10.0					
178 21955.050	46.2	+0.0	+0.0	+0.0	-33.2	-9.5	47.7	54.0	-6.3	Horiz
M	10.2	+2.3	+0.0	+0.0	+40.5	7.5	17.7	51.0	0.5	TIONE
		+1.4	+0.0	+0.0	10.0					
179 7438.398M	40.5	+0.0	+2.4	+7.8	-37.5	+0.0	47.7	54.0	-6.3	Vert
Ave		+1.2	+33.2	+0.1	+0.0					
		+0.0	+0.0	+0.0						
180 9761.675M	35.0	+0.0	+2.6	+9.0	-36.4	+0.0	47.7	54.0	-6.3	Vert
		+1.5	+35.8	+0.2	+0.0					
		+0.0	+0.0	+0.0						
181 7441.499M	40.4	+0.0	+2.4	+7.8	-37.5	+0.0	47.6	54.0	-6.4	Vert
Ave		+1.2	+33.2	+0.1	+0.0					
		+0.0	+0.0	+0.0						
182 7213.400M	43.5	+0.0	+2.4	+7.8	-37.0	+0.0	47.6	54.0	-6.4	Horiz
Ave		+1.2	+33.1	+0.2	+0.0					
		+0.0	+0.0	-3.6						
183 12197.290	36.9	+0.0	+3.1	+10.4	-36.6	+0.0	47.6	54.0	-6.4	Horiz
М		+1.5	+35.7	+0.2	+0.0					
Ave		+0.0	+0.0	-3.6						
184 14432.980	26.5	+0.0	+3.3	+11.6	-35.3	+0.0	47.5	54.0	-6.5	Horiz
М		+1.7	+39.5	+0.2	+0.0					
Ave		+0.0	+0.0	+0.0						
^ 14432.980	35.4	+0.0	+3.3	+11.6	-35.3	+0.0	56.4	54.0	+2.4	Horiz
М		+1.7	+39.5	+0.2	+0.0					
		+0.0	+0.0	+0.0	25.2			54.0		
^ 14432.950	35.2	+0.0	+3.3	+11.6	-35.3	+0.0	56.2	54.0	+2.2	Horiz
М		+1.7	+39.5	+0.2	+0.0					
△ 14422 010	20.2	+0.0	+0.0	+0.0	25.2		51.0	54.0	2.0	II.
^ 14433.010 M	30.2	$^{+0.0}_{+1.7}$	+3.3 +39.5	+11.6 +0.2	-35.3 +0.0	+0.0	51.2	54.0	-2.8	Horiz
IVI		+0.0	+39.3 +0.0	+0.2 +0.0	$\pm 0.0$					
188 12202.350	36.8	+0.0 +0.0	+0.0 +3.1	+0.0 +10.4	36.6	+0.0	47.5	54.0	-6.5	Horiz
188 12202.530 M	50.0		+3.1 +35.7		+0.0		т1.3	54.0	-0.5	TIOUZ
Ave		+1.3 +0.0	+0.0	-3.6	0.0					
^ 12202.280	43.2	+0.0	+3.1	+10.4	-36.6	+0.0	57.5	54.0	+3.5	Horiz
M	73.2	+0.0 +1.5	+35.7	+0.2	+0.0	0.0	51.5	J-1.0		110112
141		+0.0	+0.0	+0.2 $+0.0$	0.0					
190 12022.330	36.9	+0.0	+3.1	+10.4	-36.5	+0.0	47.5	54.0	-6.5	Vert
M	2 3.7	+1.5	+35.6	+0.1	+0.0	0.0		2 1.0	0.0	
Ave		+0.0	+0.0	-3.6						
191 7318.533M	40.1	+0.0	+2.4	+7.8	-37.4	+0.0	47.5	54.0	-6.5	Horiz
Ave		+1.2	+33.2	+0.2	+0.0				5.0	
		+0.0	+0.0	+0.0						
^ 7318.533M	47.8	+0.0	+2.4	+7.8	-37.4	+0.0	55.2	54.0	+1.2	Horiz
		+1.2	+33.2	+0.2	+0.0					
		+0.0	+0.0	+0.0						



193 14426.640	26.5	+0.0	+3.3	<i>⊥</i> 11.6	-35.3	+0.0	47.5	54.0	-6.5	Horiz
193 14420.040 M	20.3	+0.0 +1.7	+3.3 +39.5	+11.6 +0.2	+0.0	$\pm 0.0$	47.3	34.0	-0.3	HOUZ
Ave		+0.0	+0.0	+0.2 $+0.0$	10.0					
^ 14426.600	36.1	+0.0	+3.3	+11.6	-35.3	+0.0	57.1	54.0	+3.1	Horiz
M	50.1	+1.7	+39.5	+0.2	+0.0	10.0	57.1	54.0	5.1	TIOTIZ
111		+0.0	+0.0	+0.0	0.0					
^ 14426.640	36.0	+0.0	+3.3	+11.6	-35.3	+0.0	57.0	54.0	+3.0	Horiz
M	50.0	+1.7	+39.5	+0.2	+0.0	0.0	07.0	5 1.0	. 5.0	110112
		+0.0	+0.0	+0.0						
196 7216.450M	43.4	+0.0	+2.4	+7.8	-37.0	+0.0	47.5	54.0	-6.5	Horiz
Ave		+1.2	+33.1	+0.2	+0.0					
		+0.0	+0.0	-3.6						
197 9761.917M	34.8	+0.0	+2.6	+9.0	-36.4	+0.0	47.5	54.0	-6.5	Vert
		+1.5	+35.8	+0.2	+0.0					
		+0.0	+0.0	+0.0						
198 9617.807M	38.4	+0.0	+2.7	+9.0	-36.1	+0.0	47.5	54.0	-6.5	Horiz
Ave		+1.5	+35.6	+0.0	+0.0					
		+0.0	+0.0	-3.6						
^ 9617.807M	45.3	+0.0	+2.7	+9.0	-36.1	+0.0	58.0	54.0	+4.0	Horiz
		+1.5	+35.6	+0.0	+0.0					
		+0.0	+0.0	+0.0						
^ 9617.780M	39.8	+0.0	+2.7	+9.0	-36.1	+0.0	52.5	54.0	-1.5	Horiz
		+1.5	+35.6	+0.0	+0.0					
		+0.0	+0.0	+0.0						
^ 9617.825M	39.3	+0.0	+2.7	+9.0	-36.1	+0.0	52.0	54.0	-2.0	Horiz
		+1.5	+35.6	+0.0	+0.0					
		+0.0	+0.0	+0.0						
^ 9617.779M	39.0	+0.0	+2.7	+9.0	-36.1	+0.0	51.7	54.0	-2.3	Horiz
		+1.5	+35.6	+0.0	+0.0					
A 0(17.010)	20.0	+0.0	+0.0	+0.0	26.1		51.5	54.0	2.5	
^ 9617.818M	38.8	+0.0	+2.7	+9.0	-36.1	+0.0	51.5	54.0	-2.5	Horiz
		+1.5	+35.6	+0.0	+0.0					
A 0(17.7(5))	26.0	+0.0	+0.0	+0.0	26.1		40.7	54.0	5.2	TT
^ 9617.765M	36.0	+0.0 +1.5	+2.7 +35.6	+9.0 +0.0	-36.1 +0.0	+0.0	48.7	54.0	-5.3	Horiz
		+1.5 +0.0	+35.0 +0.0	+0.0 +0.0	+0.0					
205 14643.030	26.3	+0.0 +0.0	+0.0 +3.3	+0.0 +11.6	-35.2	+0.0	47.4	54.0	-6.6	Horiz
203 14045.050 M	20.3		+39.4		+0.0	0.0	7/.4	54.0	-0.0	TIOUZ
Ave		+0.0	+0.0	+0.2 +0.0	0.0					
206 12197.320	33.1	+0.0	+3.1	+10.4	-36.6	+0.0	47.4	54.0	-6.6	Horiz
200 12177.520 M	55.1	+1.5	+35.7	+0.2	+0.0	. 0.0	т, т	J f.U	0.0	110112
Ave		+0.0	+0.0	+0.2	0.0					
207 7321.414M	40.0	+0.0	+2.4	+7.8	-37.4	+0.0	47.4	54.0	-6.6	Horiz
Ave	10.0	+1.2	+33.2	+0.2	+0.0	0.0		2 1.0	0.0	
		+0.0	+0.0	+0.0						
^ 7321.430M	48.3	+0.0	+2.4	+7.8	-37.4	+0.0	55.7	54.0	+1.7	Horiz
		+1.2	+33.2	+0.2	+0.0		• •			
		+0.0	+0.0	+0.0						
^ 7321.414M	47.4	+0.0	+2.4	+7.8	-37.4	+0.0	54.8	54.0	+0.8	Horiz
		+1.2	+33.2	+0.2	+0.0					
		+0.0	+0.0	+0.0						
L										



↑ 7221 422N	17.0		12.4	17.0	27.4		5 A A	54.0	10.4	II
^ 7321.422M	47.0	$^{+0.0}_{+1.2}$	+2.4 +33.2	+7.8 +0.2	-37.4 +0.0	+0.0	54.4	54.0	+0.4	Horiz
		+1.2 $+0.0$	+33.2 $+0.0$	+0.2 +0.0	$\pm 0.0$					
^ 7321.438M	46.5	+0.0	+0.0	+7.8	-37.4	+0.0	53.9	54.0	-0.1	Horiz
/ 521.450101	40.5	+1.2	+33.2	+0.2	+0.0	10.0	55.9	54.0	-0.1	TIOTIZ
		+0.0	+0.0	+0.0	0.0					
212 12197.410	33.1	+0.0	+3.1	+10.4	-36.6	+0.0	47.4	54.0	-6.6	Vert
M	55.1	+1.5	+35.7	+0.2	+0.0	0.0	.,	5 1.0	0.0	vere
Ave		+0.0	+0.0	+0.0						
^ 12197.510	47.6	+0.0	+3.1	+10.4	-36.6	+0.0	61.9	54.0	+7.9	Vert
М		+1.5	+35.7	+0.2	+0.0					
		+0.0	+0.0	+0.0						
^ 12197.320	42.0	+0.0	+3.1	+10.4	-36.6	+0.0	56.3	54.0	+2.3	Vert
М		+1.5	+35.7	+0.2	+0.0					
		+0.0	+0.0	+0.0						
^ 12197.410	41.6	+0.0	+3.1	+10.4	-36.6	+0.0	55.9	54.0	+1.9	Vert
М		+1.5	+35.7	+0.2	+0.0					
		+0.0	+0.0	+0.0						
^ 12197.350	40.4	+0.0	+3.1	+10.4	-36.6	+0.0	54.7	54.0	+0.7	Vert
М		+1.5	+35.7	+0.2	+0.0					
		+0.0	+0.0	+0.0						
^ 12197.450	39.2	+0.0	+3.1	+10.4	-36.6	+0.0	53.5	54.0	-0.5	Vert
М		+1.5	+35.7	+0.2	+0.0					
		+0.0	+0.0	+0.0						
^ 12197.420	37.0	+0.0	+3.1	+10.4	-36.6	+0.0	51.3	54.0	-2.7	Vert
М		+1.5	+35.7	+0.2	+0.0					
010 10000 540	22.0	+0.0	+0.0	+0.0	26.6		15.0	54.0		<b>T</b> .T
219 12202.540	33.0	+0.0	+3.1	+10.4	-36.6	+0.0	47.3	54.0	-6.7	Vert
M		+1.5	+35.7	+0.2	+0.0					
Ave	40.0	+0.0	+0.0	+0.0	26.6		(2.1	54.0	+0.1	Vant
^ 12202.470	48.8	$^{+0.0}_{+1.5}$	+3.1	+10.4	-36.6	+0.0	63.1	54.0	+9.1	Vert
М		+1.3 $+0.0$	+35.7	+0.2 +0.0	+0.0					
^ 12202.450	41.4	+0.0 +0.0	+0.0 +3.1	+0.0 +10.4	-36.6	+0.0	55.7	54.0	+1.7	Vert
M	41.4	+0.0 $+1.5$	+3.1 +35.7	+10.4 +0.2	+0.0	$\pm 0.0$	33.7	34.0	+1./	ven
11/1		+0.0	+0.0	+0.2 +0.0	10.0					
^ 12202.540	40.7	+0.0	+3.1	+10.4	-36.6	+0.0	55.0	54.0	+1.0	Vert
M	<b>H</b> 0.7		+35.7			10.0	55.0	54.0	11.0	vert
1,1		+0.0	+0.0	+0.0	0.0					
^ 12202.520	38.6	+0.0	+3.1	+10.4	-36.6	+0.0	52.9	54.0	-1.1	Vert
M	- 5.0	+1.5	+35.7	+0.2	+0.0		>			
		+0.0	+0.0	+0.0						
224 12202.390	33.0	+0.0	+3.1	+10.4	-36.6	+0.0	47.3	54.0	-6.7	Horiz
М		+1.5	+35.7	+0.2	+0.0					
Ave		+0.0	+0.0	+0.0						
225 16838.380	24.1	+0.0	+3.6	+12.3	-34.5	+0.0	47.3	54.0	-6.7	Vert
М		+2.2	+38.4	+1.2	+0.0					
Ave		+0.0	+0.0	+0.0						
^ 16838.380	32.6	+0.0	+3.6	+12.3	-34.5	+0.0	55.8	54.0	+1.8	Vert
М		+2.2	+38.4	+1.2	+0.0					
1		+0.0	+0.0	+0.0						



227 14422 050	26.2	. 0. 0	12.2	111 (	25.2		47.0	54.0	67	
227 14432.950	26.3	+0.0		+11.6	-35.3	+0.0	47.3	54.0	-6.7	Horiz
M		+1.7	+39.5	+0.2	+0.0					
Ave	25.0	+0.0	+0.0	+0.0	26.5		47.0	54.0	( )	TT '
228 12397.280	35.9	+0.0	+3.2	+10.5	-36.5	+0.0	47.2	54.0	-6.8	Horiz
M		+1.5	+35.8	+0.4	+0.0					
Ave	26.2	+0.0	+0.0	-3.6	25.2		47.2	54.0	( )	II
229 14426.850	26.2	+0.0	+3.3	+11.6	-35.3	+0.0	47.2	54.0	-6.8	Horiz
M		+1.7	+39.5	+0.2	+0.0					
Ave	24.1	+0.0	+0.0	+0.0	245		47.0	54.0	6.0	Vort
230 16831.180	24.1	+0.0	+3.6	$^{+12.3}_{+1.2}$	-34.5	+0.0	47.2	54.0	-6.8	Vert
M		+2.2	+38.3		+0.0					
Ave	22.0	+0.0	+0.0	+0.0	26.6		47.2	54.0	( 0	Vort
231 12197.350	32.9	+0.0	+3.1	+10.4	-36.6	+0.0	47.2	54.0	-6.8	Vert
M		+1.5	+35.7	+0.2	+0.0					
Ave	20.7	+0.0	+0.0	+0.0	26.6		52.0	54.0	1.0	<b>V</b> 4
^ 12197.290	38.7	+0.0	+3.1	+10.4	-36.6	+0.0	53.0	54.0	-1.0	Vert
М		+1.5	+35.7	+0.2	+0.0					
222 1707( 270	22.6	+0.0	+0.0	+0.0 +12.5	24.2		47.1	54.0	( )	Hamim
233 17076.270 M	22.6	+0.0 +2.1	+3.6 +39.2	$^{+12.5}_{+1.4}$	-34.3 +0.0	+0.0	47.1	54.0	-6.9	Horiz
		+2.1 +0.0			$\pm 0.0$					
Ave	26.5		+0.0	+0.0	265		47.1	54.0	( )	Vort
234 12027.380 M	36.5	+0.0	+3.1 +35.6	+10.4	-36.5 +0.0	+0.0	47.1	54.0	-6.9	Vert
		+1.5 +0.0		+0.1	$\pm 0.0$					
Ave	24.0		+0.0	-3.6	245		47.1	54.0	( )	Hamim
235 16831.180 M	24.0	$^{+0.0}_{+2.2}$	+3.6 +38.3	$^{+12.3}_{+1.2}$	-34.5 +0.0	+0.0	47.1	54.0	-6.9	Horiz
		+2.2 +0.0	+38.3 +0.0	$^{+1.2}_{+0.0}$	$\pm 0.0$					
Ave ^ 16831.230	31.7	+0.0 +0.0	+0.0 +3.6		24.5	+0.0	54.8	54.0	+0.8	Horiz
M	31.7	+0.0 +2.2	+3.0 +38.3	+12.3 +1.2	-34.5 +0.0	+0.0	54.8	54.0	+0.8	Horiz
IVI		+2.2 +0.0	+38.3 $+0.0$	+1.2 +0.0	$\pm 0.0$					
237 12202.450	32.8	+0.0 $+0.0$	+0.0 +3.1	+10.4	-36.6	+0.0	47.1	54.0	-6.9	Vert
237 12202.430 M	32.0	+0.0 $+1.5$	+3.1 +35.7	+10.4 +0.2	+0.0	$\pm 0.0$	4/.1	54.0	-0.9	ven
Ave		+0.0	+0.0	+0.2 $+0.0$	10.0					
^ 12202.370	42.6	+0.0	+0.0 +3.1	+10.4	-36.6	+0.0	56.9	54.0	+2.9	Vert
M	42.0	+0.0 $+1.5$	+3.1 +35.7	+10.4 +0.2	+0.0	$\pm 0.0$	50.9	54.0	72.9	ven
141		+0.0	+0.0	+0.2 $+0.0$	10.0					
^ 12202.370	39.8	+0.0	+3.1	+10.4	_36.6	+0.0	54.1	54.0	+0.1	Vert
M	39.0			+10.4 +0.2			J <b>-</b> 7.1	54.0	0.1	vert
141		+0.0	+0.0	+0.2 $+0.0$	0.0					
240 14636.730	26.0	+0.0	+3.3	+11.6	-35.2	+0.0	47.1	54.0	-6.9	Horiz
240 14030.750 M	20.0	+0.0 +1.8	+39.4	+0.2	+0.0	- 0.0	7/.1	54.0	0.7	TIOUZ
Ave		+0.0	+0.0	+0.2 $+0.0$	0.0					
241 9918.000M	33.9	+0.0	+0.0	+9.1	-36.3	+0.0	47.1	54.0	-6.9	Vert
211 9910.0001VI	55.7	+1.5	+36.0	+0.2	+0.0	. 0.0	17.1	5 1.0	0.7	, 011
		+0.0	+0.0	+0.2	0.0					
242 14432.800	25.9	+0.0	+3.3	+11.6	-35.3	+0.0	46.9	54.0	-7.1	Horiz
242 14452.000 M	<u>_</u> J.)	+1.7	+39.5	+0.2	+0.0	. 0.0	10.7	5 1.0	/.1	110112
Ave		+0.0	+0.0	+0.2	0.0					
^ 14432.770	35.6	+0.0	+3.3	+11.6	-35.3	+0.0	56.6	54.0	+2.6	Horiz
M	55.0	+1.7	+39.5	+0.2	+0.0	. 0.0	20.0	5 1.0	-2.0	110112
141		+0.0	+0.0	+0.2 $+0.0$	0.0					
		. 0.0	. 0.0	0.0						



△ 14422 900	25.2		12.2	+11.6	25.2		560	54.0	10.2	Hamim
^ 14432.800	35.3	+0.0	+3.3 +39.5	+11.6 +0.2	-35.3	+0.0	56.3	54.0	+2.3	Horiz
М		+1.7 +0.0	+39.3 +0.0	+0.2 +0.0	+0.0					
245 12022.310	36.3	+0.0	+3.1	+10.4	-36.5	+0.0	46.9	54.0	-7.1	Vert
243 12022.510 M	50.5	+1.5	+3.1 +35.6	+10.4 +0.1	+0.0	10.0	40.9	54.0	-/.1	ven
Ave		+0.0	+0.0	-3.6	10.0					
246 12397.320	35.6	+0.0	+3.2	+10.5	-36.5	+0.0	46.9	54.0	-7.1	Horiz
M	55.0	+1.5	+35.8	+0.4	+0.0	10.0	<del>4</del> 0.7	54.0	-/.1	TIOTIZ
Ave		+0.0	+0.0	-3.6	10.0					
^ 12397.280	44.3	+0.0	+3.2	+10.5	-36.5	+0.0	59.2	54.0	+5.2	Horiz
M	5	+1.5	+35.8	+0.4	+0.0	0.0	57.2	54.0	10.2	110112
101		+0.0	+0.0	+0.0	0.0					
^ 12397.320	43.0	+0.0	+3.2	+10.5	-36.5	+0.0	57.9	54.0	+3.9	Horiz
M	45.0	+1.5	+35.8	+0.4	+0.0	0.0	51.7	54.0	13.7	110112
111		+0.0	+0.0	+0.0	0.0					
^ 12397.320	42.8	+0.0	+3.2	+10.5	-36.5	+0.0	57.7	54.0	+3.7	Horiz
M	12.0	+1.5	+35.8	+0.4	+0.0	. 0.0	51.1	01.0		110112
		+0.0	+0.0	+0.0	0.0					
^ 12397.310	42.2	+0.0	+3.2	+10.5	-36.5	+0.0	57.1	54.0	+3.1	Horiz
М		+1.5	+35.8	+0.4	+0.0	0.0	0111	0	0.11	TIOTIL
		+0.0	+0.0	+0.0						
^ 12397.340	41.9	+0.0	+3.2	+10.5	-36.5	+0.0	56.8	54.0	+2.8	Horiz
М		+1.5	+35.8	+0.4	+0.0			• • • • •		
		+0.0	+0.0	+0.0						
^ 12397.360	40.0	+0.0	+3.2	+10.5	-36.5	+0.0	54.9	54.0	+0.9	Horiz
М		+1.5	+35.8	+0.4	+0.0					
		+0.0	+0.0	+0.0						
253 12397.350	35.6	+0.0	+3.2	+10.5	-36.5	+0.0	46.9	54.0	-7.1	Vert
М		+1.5	+35.8	+0.4	+0.0					
Ave		+0.0	+0.0	-3.6						
^ 12397.320	49.1	+0.0	+3.2	+10.5	-36.5	+0.0	64.0	54.0	+10.0	Vert
М		+1.5	+35.8	+0.4	+0.0					
		+0.0	+0.0	+0.0						
255 17356.410	21.1	+0.0	+3.7	+12.7	-34.2	+0.0	46.9	54.0	-7.1	Horiz
М		+1.9	+40.0	+1.7	+0.0					
Ave		+0.0	+0.0	+0.0						
^ 17356.410	32.5	+0.0	+3.7	+12.7		+0.0	58.3	54.0	+4.3	Horiz
М			+40.0	+1.7	+0.0					
		+0.0	+0.0	+0.0						
257 14432.770	25.9	+0.0	+3.3	+11.6	-35.3	+0.0	46.9	54.0	-7.1	Horiz
М		+1.7	+39.5	+0.2	+0.0					
Ave		+0.0	+0.0	+0.0	-					
258 7213.383M	42.7	+0.0	+2.4	+7.8	-37.0	+0.0	46.8	54.0	-7.2	Vert
Ave		+1.2	+33.1	+0.2	+0.0					
	<b>F</b> ·	+0.0	+0.0	-3.6					_ :	<b>.</b> -
^ 7213.417M	51.7	+0.0	+2.4	+7.8	-37.0	+0.0	59.4	54.0	+5.4	Vert
		+1.2	+33.1	+0.2	+0.0					
		+0.0	+0.0	+0.0		0.5				
^ 7213.383M	50.2	+0.0	+2.4	+7.8	-37.0	+0.0	57.9	54.0	+3.9	Vert
		+1.2	+33.1	+0.2	+0.0					
		+0.0	+0.0	+0.0						



				-						
^ 7213.392M	47.8	+0.0	+2.4	+7.8	-37.0	+0.0	55.5	54.0	+1.5	Vert
		+1.2	+33.1	+0.2	+0.0					
	12.2	+0.0	+0.0	+0.0	27.0		50.0	54.0	2.1	<b>T T</b> .
^ 7213.358M	43.2	+0.0	+2.4	+7.8	-37.0	+0.0	50.9	54.0	-3.1	Vert
		+1.2	+33.1	+0.2	+0.0					
	10.1	+0.0	+0.0	+0.0	27.0		10.0	54.0		<b>.</b>
^ 7213.383M	42.1	+0.0	+2.4	+7.8	-37.0	+0.0	49.8	54.0	-4.2	Vert
		+1.2	+33.1	+0.2	+0.0					
	10.7	+0.0	+0.0	+0.0	27.0		16.0	54.0	7.0	<b>X</b> 7 /
264 7216.463M	42.7	+0.0	+2.4	+7.8	-37.0	+0.0	46.8	54.0	-7.2	Vert
Ave		+1.2	+33.1	+0.2	+0.0					
A 7016 4170 6	52.1	+0.0	+0.0	-3.6	27.0		(0.0	54.0		<b>X</b> 7 /
^ 7216.417M	53.1	+0.0	+2.4	+7.8	-37.0	+0.0	60.8	54.0	+6.8	Vert
		+1.2	+33.1	+0.2	+0.0					
A 7016 46016	10.0	+0.0	+0.0	+0.0	27.0			54.0	12.5	<b>X</b> 7 /
^ 7216.463M	49.8	+0.0	+2.4	+7.8	-37.0	+0.0	57.5	54.0	+3.5	Vert
		+1.2	+33.1	+0.2	+0.0					
A 701 ( 400) (	40.4	+0.0	+0.0	+0.0	27.0		561	54.0	10.1	<b>X</b> 7 /
^ 7216.420M	48.4	+0.0	+2.4	+7.8	-37.0	+0.0	56.1	54.0	+2.1	Vert
		+1.2	+33.1	+0.2	+0.0					
A 7016 200M	47.0	+0.0	+0.0	+0.0	27.0		<i></i>	54.0	1.7	<b>N</b> <i>T</i> 4
^ 7216.392M	47.8	+0.0	+2.4	+7.8	-37.0	+0.0	55.5	54.0	+1.5	Vert
		+1.2	+33.1	+0.2	+0.0					
A 7016 47516	42.4	+0.0	+0.0	+0.0	27.0		<b>50 1</b>	54.0	2.0	<b>N</b> <i>T</i> 4
^ 7216.475M	42.4	+0.0	+2.4	+7.8	-37.0	+0.0	50.1	54.0	-3.9	Vert
		+1.2	+33.1	+0.2	+0.0					
270 12402.390	25.5	+0.0	+0.0 +3.2	+0.0	265		16.0	54.0	7.2	Vart
270 12402.390 M	35.5	$^{+0.0}_{+1.5}$	+3.2 +35.8	+10.5 +0.4	-36.5 +0.0	+0.0	46.8	54.0	-7.2	Vert
Ave		+0.0	+0.0	-3.6	10.0					
^ 12402.300	37.9	+0.0	+3.2	+10.5	-36.5	+0.0	52.8	54.0	-1.2	Vert
M	57.9	+0.0 $+1.5$	+3.2 +35.8	+10.3 +0.4	+0.0	$\pm 0.0$	32.0	54.0	-1.2	ven
IVI		+0.0	+0.0	+0.4	10.0					
272 21964.250	45.3	+0.0	+0.0	+0.0	-33.2	-9.5	46.8	54.0	-7.2	Vert
272 21904.250 M	45.5	+0.0 +2.3	+0.0	+0.0	+40.5	-9.5	40.0	54.0	-1.2	ven
101		+1.4	+0.0	+0.0	140.5					
273 14876.960	26.0	+0.0	+3.4	+11.5	-35.1	+0.0	46.8	54.0	-7.2	Horiz
273 14870.900 M	20.0	+0.0 +1.9				0.0	-0.0	54.0	-1.4	TIOUZ
Ave		+0.0	+0.0	+0.0	. 0.0					
^ 14876.960	36.2	+0.0	+3.4	+11.5	-35.1	+0.0	57.0	54.0	+3.0	Horiz
M	50.2	+1.9	+38.8	+0.3	+0.0	0.0	57.0	J-1.0	- 5.0	110112
141		+0.0	+0.0	+0.0	0.0					
275 14426.860	25.7	+0.0	+3.3	+11.6	-35.3	+0.0	46.7	54.0	-7.3	Horiz
M	20.1	+1.7	+39.5	+0.2	+0.0	. 0.0	10.7	5 1.0	1.5	110112
Ave		+0.0	+0.0	+0.0	0.0					
^ 14426.850	34.2	+0.0	+3.3	+11.6	-35.3	+0.0	55.2	54.0	+1.2	Horiz
M	5 1.2	+1.7	+39.5	+0.2	+0.0	. 0.0	55.2	5 1.0	1.4	110112
171		+0.0	+0.0	+0.2	0.0					
^ 14426.860	34.2	+0.0	+3.3	+11.6	-35.3	+0.0	55.2	54.0	+1.2	Horiz
M	5 1.2	+1.7	+39.5	+0.2	+0.0	. 0.0	55.2	5 1.0	1.4	110112
141		+0.0	+0.0	+0.2 $+0.0$	. 0.0					
		0.0	0.0	0.0						



A 1440 ( 010	22.6			111 (	25.2		52.6	54.0	0.4	
^ 14426.910	32.6	+0.0		+11.6	-35.3	+0.0	53.6	54.0	-0.4	Horiz
М		+1.7	+39.5	+0.2	+0.0					
270 12402 400	25.4	+0.0	+0.0	+0.0	265		167	54.0	7.2	Hamim
279 12402.400 M	35.4	$^{+0.0}_{+1.5}$	+3.2	+10.5	-36.5 +0.0	+0.0	46.7	54.0	-7.3	Horiz
			+35.8	+0.4	$\pm 0.0$					
Ave	25.4	+0.0	+0.0	-3.6	265		167	54.0	7.2	Hamim
280 12402.450	35.4	+0.0	+3.2	+10.5	-36.5	+0.0	46.7	54.0	-7.3	Horiz
M		+1.5	+35.8	+0.4	+0.0					
Ave ^ 12402.450	43.4	+0.0 +0.0	+0.0 +3.2	-3.6 +10.5	-36.5	+0.0	58.3	54.0	+4.3	Horiz
M 12402.430	43.4	+0.0 $+1.5$	+3.2 +35.8	+10.3 $+0.4$	+0.0	$\pm 0.0$	38.5	34.0	74.3	Horiz
IVI		+1.3 $+0.0$			$\pm 0.0$					
^ 12402.400	42.1		+0.0	+0.0	265		59.0	54.0	+4.0	Hamim
M 12402.400	43.1	$^{+0.0}_{+1.5}$	+3.2 +35.8	+10.5	-36.5 +0.0	+0.0	58.0	54.0	+4.0	Horiz
IVI		+1.3 $+0.0$		+0.4 +0.0	$\pm 0.0$					
^ 12402.430	42.1	+0.0 +0.0	+0.0 +3.2		-36.5		57.0	54.0	12.0	Hamim
M 12402.430	42.1	+0.0 $+1.5$	+3.2 +35.8	+10.5 +0.4	-30.5 + 0.0	+0.0	57.0	54.0	+3.0	Horiz
IVI		+1.3 $+0.0$	+33.8 $+0.0$	+0.4 $+0.0$	$\pm 0.0$					
^ 12402.410	41.9	+0.0 +0.0	+0.0 +3.2	+0.0 +10.5	-36.5	+0.0	56.8	54.0	+2.8	Horiz
M	41.9	+0.0 $+1.5$	+3.2 +35.8	+10.3 +0.4	+0.0	$\pm 0.0$	30.8	34.0	72.0	Horiz
IVI		+1.3 $+0.0$	+33.8 $+0.0$	+0.4 $+0.0$	$\pm 0.0$					
^ 12402.390	41.7	+0.0 +0.0	+0.0 +3.2		-36.5	+0.0	56.6	54.0	+2.6	Horiz
	41./	+0.0 $+1.5$	+3.2 +35.8	$^{+10.5}_{+0.4}$	-30.5 + 0.0	+0.0	30.0	54.0	+2.0	Horiz
М		+1.3 $+0.0$			$\pm 0.0$					
^ 12402.370	20 (	+0.0 +0.0	+0.0 +3.2	+0.0	-36.5	+0.0	52.5	54.0	-0.5	Hamim
M 12402.370	38.6	+0.0 $+1.5$	+3.2 +35.8	$^{+10.5}_{+0.4}$	-30.5 + 0.0	+0.0	53.5	54.0	-0.5	Horiz
IVI		+1.3 $+0.0$	+33.8 $+0.0$	+0.4 $+0.0$	$\pm 0.0$					
287 21964.250	45.2	+0.0	+0.0	+0.0	-33.2	-9.5	46.7	54.0	-7.3	Uoriz
287 21904.230 M	43.2	+0.0 +2.3	+0.0 +0.0	+0.0 +0.0	+40.5	-9.5	40.7	54.0	-7.5	Horiz
171		+2.3 $+1.4$	+0.0	+0.0	40.5					
288 14642.780	25.6	+0.0	+3.3	+11.6	-35.2	+0.0	46.7	54.0	-7.3	Horiz
288 14042.780 M	23.0	+1.8	+39.4	+0.2	+0.0	10.0	40.7	54.0	-7.5	TIOTIZ
Ave		+0.0	+0.0	+0.2 $+0.0$	10.0					
^ 14642.780	35.5	+0.0	+3.3	+11.6	-35.2	+0.0	56.6	54.0	+2.6	Horiz
M	55.5	+1.8	+39.4	+0.2	+0.0	10.0	50.0	54.0	12.0	TIOTIZ
111		+0.0	+0.0	+0.2	10.0					
290 12397.360	31.7	+0.0	+3.2	+10.5	-36.5	+0.0	46.6	54.0	-7.4	Horiz
2)0 12377.500 M	21.1			+0.4		. 0.0	10.0	5 1.0	г.т	110112
Ave		+0.0	+0.0	+0.0	0.0					
291 14636.820	25.5	+0.0	+3.3	+11.6	-35.2	+0.0	46.6	54.0	-7.4	Vert
M	-0.0	+1.8	+39.4	+0.2	+0.0	0.0		21.0	, . I	, 011
Ave		+0.0	+0.0	+0.0	0.0					
^ 14636.820	34.7	+0.0	+3.3	+11.6	-35.2	+0.0	55.8	54.0	+1.8	Vert
M	2 1.7	+1.8	+39.4	+0.2	+0.0	0.0	22.0	2 1.0	1.0	
		+0.0	+0.0	+0.0						
^ 14636.730	32.9	+0.0	+3.3	+11.6	-35.2	+0.0	54.0	54.0	+0.0	Vert
M	2 = . /	+1.8	+39.4	+0.2	+0.0	0.0		20	0.0	
		+0.0	+0.0	+0.0						
^ 14636.890	32.7	+0.0	+3.3	+11.6	-35.2	+0.0	53.8	54.0	-0.2	Vert
M		+1.8	+39.4	+0.2	+0.0				J. <b>_</b>	
		+0.0	+0.0	+0.0						
L										



205 12202	360 35.8	+0.0	+3.1	+10.4	-36.6	+0.0	16.5	54.0	-7.5	Horiz
295 12202. M		+0.0 +1.5	+3.1 +35.7	+10.4 +0.2	-30.0 +0.0	+0.0	46.5	54.0	-7.5	Horiz
Ave		+0.0	+0.0	-3.6	10.0					
296 14426.	600 25.5		+3.3	+11.6	-35.3	+0.0	46.5	54.0	-7.5	Horiz
290 14420. M		+0.0 $+1.7$	+39.5	+0.2	+0.0	10.0	40.5	54.0	-7.5	TIOTIZ
Ave		+0.0	+0.0	+0.2 $+0.0$	10.0					
297 17075.	990 22.0		+3.6	+12.5	-34.3	+0.0	46.5	54.0	-7.5	Horiz
297 17073. M		+0.0 +2.1	+39.2	+12.5 +1.4	+0.0	10.0	40.5	54.0	-7.5	TIOTIZ
Ave		+0.0	+0.0	+0.0	0.0					
^ 17075.	990 30.4	+0.0	+3.6	+12.5	-34.3	+0.0	54.9	54.0	+0.9	Horiz
M	<i>JJO</i>	+2.1	+39.2	+1.4	+0.0	0.0	54.9	54.0	10.7	TIONZ
101		+0.0	+0.0	+0.0	0.0					
299 9621.7	70M 33.8	+0.0	+2.7	+9.0	-36.1	+0.0	46.5	54.0	-7.5	Horiz
Ave	/01/01 55.0	+1.5	+35.6	+0.0	+0.0	10.0	ч0. <i>3</i>	54.0	-1.5	TIOTIZ
1100		+0.0	+0.0	+0.0	0.0					
^ 9621.8	56M 46.0		+2.7	+9.0	-36.1	+0.0	58.7	54.0	+4.7	Horiz
2021.0	10.0	+1.5	+35.6	+0.0	+0.0	.0.0	50.7	51.0	• 1.7	TIONZ
		+0.0	+0.0	+0.0	0.0					
^ 9621.7	70M 42.0		+2.7	+9.0	-36.1	+0.0	54.7	54.0	+0.7	Horiz
>021.7	, 0101 12.0	+1.5	+35.6	+0.0	+0.0	0.0	01.7	5 1.0	. 0.1	110112
		+0.0	+0.0	+0.0						
302 17355.	760 20.7		+3.7	+12.7	-34.2	+0.0	46.5	54.0	-7.5	Horiz
M		+1.9	+40.0	+1.7	+0.0	0.0	10.0	0 110	7.0	TIOTIL
Ave		+0.0	+0.0	+0.0						
^ 17355.	760 29.9	+0.0	+3.7	+12.7	-34.2	+0.0	55.7	54.0	+1.7	Horiz
М		+1.9	+40.0	+1.7	+0.0					-
		+0.0	+0.0	+0.0						
304 12197.	310 35.8	+0.0	+3.1	+10.4	-36.6	+0.0	46.5	54.0	-7.5	Horiz
М		+1.5	+35.7	+0.2	+0.0					
Ave		+0.0	+0.0	-3.6						
305 12022.	250 35.9	+0.0	+3.1	+10.4	-36.5	+0.0	46.5	54.0	-7.5	Vert
М		+1.5	+35.6	+0.1	+0.0					
Ave		+0.0	+0.0	-3.6						
306 17356.	250 24.2	+0.0	+3.7	+12.7	-34.2	+0.0	46.4	54.0	-7.6	Vert
М		+1.9	+40.0	+1.7	+0.0					
Ave		+0.0	+0.0	-3.6						
^ 17356.	250 34.8		+3.7	+12.7	-34.2	+0.0	60.6	54.0	+6.6	Vert
М			+40.0		+0.0					
		+0.0	+0.0	+0.0						
^ 17356.	220 32.5		+3.7	+12.7	-34.2	+0.0	58.3	54.0	+4.3	Vert
М		+1.9	+40.0	+1.7	+0.0					
		+0.0	+0.0	+0.0						
309 14882.			+3.4	+11.5	-35.1	+0.0	46.4	54.0	-7.6	Horiz
М		+1.9	+38.8	+0.3	+0.0					
Ave		+0.0	+0.0	+0.0						
^ 14882.	860 34.4	+0.0	+3.4	+11.5	-35.1	+0.0	55.2	54.0	+1.2	Horiz
M		+1.9	+38.8	+0.3	+0.0					
		+0.0	+0.0	+0.0						
^ 14882.	930 33.0	+0.0	+3.4	+11.5	-35.1	+0.0	53.8	54.0	-0.2	Horiz
М		+1.9	+38.8	+0.3	+0.0					
		+0.0	+0.0	+0.0						



212 7221 44014	12 (		12.4	17.0	27.4		16.1	54.0	7(	V. a. at
312 7321.440M Ave	42.6	$^{+0.0}_{+1.2}$	+2.4 +33.2	+7.8 +0.2	-37.4 +0.0	+0.0	46.4	54.0	-7.6	Vert
AVC		+0.0	+0.0	-3.6	10.0					
313 12027.370	35.8	+0.0	+3.1	+10.4	-36.5	+0.0	46.4	54.0	-7.6	Vert
M	55.0	+1.5	+35.6	+0.1	+0.0	0.0	70.7	54.0	7.0	Vert
Ave		+0.0	+0.0	-3.6	0.0					
314 17355.470	20.5	+0.0	+3.7	+12.7	-34.2	+0.0	46.3	54.0	-7.7	Vert
M	20.0	+1.9	+40.0	+1.7	+0.0	0.0	10.5	5 1.0	7.7	vert
Ave		+0.0	+0.0	+0.0						
^ 17355.470	31.6	+0.0	+3.7	+12.7	-34.2	+0.0	57.4	54.0	+3.4	Vert
М		+1.9	+40.0	+1.7	+0.0					
		+0.0	+0.0	+0.0						
316 17363.650	24.1	+0.0	+3.7	+12.7	-34.2	+0.0	46.3	54.0	-7.7	Vert
М		+1.9	+40.0	+1.7	+0.0					
Ave		+0.0	+0.0	-3.6						
^ 17363.650	32.4	+0.0	+3.7	+12.7	-34.2	+0.0	58.2	54.0	+4.2	Vert
М		+1.9	+40.0	+1.7	+0.0					
		+0.0	+0.0	+0.0						
318 16837.870	26.7	+0.0	+3.6	+12.3	-34.5	+0.0	46.3	54.0	-7.7	Vert
М		+2.2	+38.4	+1.2	+0.0					
Ave		+0.0	+0.0	-3.6						
^ 16837.870	30.7	+0.0	+3.6	+12.3	-34.5	+0.0	53.9	54.0	-0.1	Vert
М		+2.2	+38.4	+1.2	+0.0					
		+0.0	+0.0	+0.0						
320 17076.220	21.8	+0.0	+3.6	+12.5	-34.3	+0.0	46.3	54.0	-7.7	Vert
М		+2.1	+39.2	+1.4	+0.0					
Ave	20.6	+0.0	+0.0	+0.0	24.2		55.1	54.0	. 1 1	<b>X</b> 7 /
^ 17076.220	30.6	+0.0	+3.6	+12.5	-34.3	+0.0	55.1	54.0	+1.1	Vert
М		+2.1	+39.2	+1.4	+0.0					
222 12402 420	25.0	+0.0	+0.0	+0.0	265		46.2	54.0	77	Hamim
322 12402.430 M	35.0	$^{+0.0}_{+1.5}$	+3.2 +35.8	+10.5 +0.4	-36.5 +0.0	+0.0	46.3	54.0	-7.7	Horiz
Ave		+1.3 $+0.0$	+33.8 $+0.0$	-3.6	$\pm 0.0$					
323 7438.325M	39.0	+0.0	+0.0 +2.4	+7.8	-37.5	+0.0	46.2	54.0	-7.8	Horiz
Ave	39.0	+0.0 $+1.2$	+2.4 +33.2	+7.8 +0.1	+0.0	+0.0	40.2	54.0	-/.0	HOLIZ
Ave		+0.0	+0.0	+0.1 +0.0	10.0					
^ 7438.413M	49.4	+0.0	+0.0	+7.8	-37.5	+0.0	56.6	54.0	+2.6	Horiz
, 130.71311	17.7		+33.2		+0.0	. 0.0	20.0	5 1.0	- 2.0	110112
		+0.0	+0.0	+0.0	0.0					
^ 7438.325M	47.6	+0.0	+2.4	+7.8	-37.5	+0.0	54.8	54.0	+0.8	Horiz
		+1.2	+33.2	+0.1	+0.0				0.0	
		+0.0	+0.0	+0.0	0.0					
^ 7438.342M	47.0	+0.0	+2.4	+7.8	-37.5	+0.0	54.2	54.0	+0.2	Horiz
		+1.2	+33.2	+0.1	+0.0		. –	. •		
		+0.0	+0.0	+0.0						
^ 7438.370M	46.5	+0.0	+2.4	+7.8	-37.5	+0.0	53.7	54.0	-0.3	Horiz
		+1.2	+33.2	+0.1	+0.0					
		+0.0	+0.0	+0.0						
^ 7438.357M	46.4	+0.0	+2.4	+7.8	-37.5	+0.0	53.6	54.0	-0.4	Horiz
				. 0 1						
		+1.2	+33.2	+0.1	+0.0					



^ 7438.413M	43.6	+0.0	+2.4	+7.8	-37.5	+0.0	50.8	54.0	-3.2	Horiz
		+1.2	+33.2	+0.1	+0.0					
	• • • •	+0.0	+0.0	+0.0						
330 17353.820	20.4	+0.0	+3.7	+12.7	-34.2	+0.0	46.2	54.0	-7.8	Horiz
М		+1.9	+40.0	+1.7	+0.0					
Ave	20.2	+0.0	+0.0	+0.0	21.0			54.0		
^ 17353.820	30.2	+0.0	+3.7	+12.7	-34.2	+0.0	56.0	54.0	+2.0	Horiz
М		+1.9	+40.0	+1.7	+0.0					
222 7216 42516	40.1	+0.0	+0.0	+0.0	27.0		46.0	54.0	7.0	
332 7216.425M	42.1	+0.0	+2.4	+7.8	-37.0	+0.0	46.2	54.0	-7.8	Horiz
Ave		+1.2	+33.1	+0.2	+0.0					
A 7016 44016	50.0	+0.0	+0.0	-3.6	27.0		50 7	54.0		
^ 7216.448M	52.0	+0.0	+2.4	+7.8	-37.0	+0.0	59.7	54.0	+5.7	Horiz
		+1.2	+33.1	+0.2	+0.0					
A 7016 45016	51.0	+0.0	+0.0	+0.0	27.0		50 7	54.0	. 4 7	
^ 7216.450M	51.0	+0.0	+2.4	+7.8	-37.0	+0.0	58.7	54.0	+4.7	Horiz
		+1.2	+33.1	+0.2	+0.0					
A 7016 40514	40.5	+0.0	+0.0	+0.0	27.0		67.0	54.0	12.0	TT '
^ 7216.425M	49.5	+0.0	+2.4	+7.8	-37.0	+0.0	57.2	54.0	+3.2	Horiz
		+1.2	+33.1	+0.2	+0.0					
A 7016 400M	40.1	+0.0	+0.0	+0.0	27.0		5(0	54.0	12.0	II.
^ 7216.400M	49.1	+0.0	+2.4	+7.8	-37.0	+0.0	56.8	54.0	+2.8	Horiz
		+1.2	+33.1	+0.2	+0.0					
∧ 701( 202M	49.0	+0.0	+0.0	+0.0	27.0		566	54.0	12.6	Hamim
^ 7216.383M	48.9	+0.0	+2.4	+7.8	-37.0	+0.0	56.6	54.0	+2.6	Horiz
		$^{+1.2}_{+0.0}$	+33.1 +0.0	+0.2 +0.0	+0.0					
^ 7216.408M	43.7	+0.0	+0.0 +2.4	+7.8	-37.0	+0.0	51.4	54.0	-2.6	Horiz
/210.408101	43.7	+0.0 $+1.2$	+2.4 +33.1	+7.8 +0.2	+0.0	$\pm 0.0$	31.4	34.0	-2.0	Horiz
		+0.0	+0.0	+0.2 +0.0	10.0					
339 16838.530	26.6	+0.0	+3.6	+12.3	-34.5	+0.0	46.2	54.0	-7.8	Horiz
M	20.0	+2.2	+38.4	+12.3 +1.2	+0.0	10.0	40.2	54.0	-7.0	TIOTIZ
Ave		+0.0	+0.0	-3.6	10.0					
^ 16838.530	31.1	+0.0	+3.6	+12.3	-34.5	+0.0	54.3	54.0	+0.3	Horiz
M	51.1	+2.2	+38.4	+12.3 +1.2	+0.0	10.0	54.5	54.0	10.5	TIOTIZ
101		+0.0	+0.0	+0.0	0.0					
341 7318.414M	42.4	+0.0	+0.0	+7.8	-37.4	+0.0	46.2	54.0	-7.8	Vert
Ave	12.7		+33.2		+0.0	0.0	.0.2	51.0	7.0	
		+0.0	+0.0	-3.6	0.0					
342 17357.140	20.3	+0.0	+3.7	+12.7	-34.2	+0.0	46.1	54.0	-7.9	Horiz
M	_0.0	+1.9	+40.0	+1.7	+0.0	0.0		2 1.0		
Ave		+0.0	+0.0	+0.0	0.0					
^ 17357.190	30.1	+0.0	+3.7	+12.7	-34.2	+0.0	55.9	54.0	+1.9	Horiz
М		+1.9	+40.0	+1.7	+0.0		• •			
		+0.0	+0.0	+0.0						
^ 17357.140	30.0	+0.0	+3.7	+12.7	-34.2	+0.0	55.8	54.0	+1.8	Horiz
М		+1.9	+40.0	+1.7	+0.0					
		+0.0	+0.0	+0.0						
345 14433.010	25.1	+0.0	+3.3	+11.6	-35.3	+0.0	46.1	54.0	-7.9	Vert
М		+1.7	+39.5	+0.2	+0.0					
Ave		+0.0	+0.0	+0.0						
		5.0	0.0	0.0						



$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Vert Vert
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Vert
347         17357.850         20.3         +0.0         +3.7         +12.7         -34.2         +0.0         46.1         54.0         -7.9           M         +1.9         +40.0         +1.7         +0.0         46.1         54.0         -7.9	Vert
M +1.9 +40.0 +1.7 +0.0	Vert
Ave +0.0 +0.0 +0.0	
^ 17357.850 30.9 +0.0 +3.7 +12.7 -34.2 +0.0 56.7 54.0 +2.7	Vert
M + 1.9 + 40.0 + 1.7 + 0.0	
+0.0 $+0.0$ $+0.0$ $+0.0$	
349 17357.190 20.3 +0.0 +3.7 +12.7 -34.2 +0.0 46.1 54.0 -7.9	Horiz
M +1.9 +40.0 +1.7 +0.0	
Ave +0.0 +0.0 +0.0	
350 7441.417M 38.9 +0.0 +2.4 +7.8 -37.5 +0.0 46.1 54.0 -7.9	Vert
Ave $+1.2 +33.2 +0.1 +0.0$	
+0.0 +0.0 +0.0	
^ 7441.325M 41.7 +0.0 +2.4 +7.8 -37.5 +0.0 48.9 54.0 -5.1	Vert
+1.2 $+33.2$ $+0.1$ $+0.0$	
+0.0 +0.0 +0.0	
352 12397.310 34.8 +0.0 +3.2 +10.5 -36.5 +0.0 46.1 54.0 -7.9	Horiz
M $+1.5 +35.8 +0.4 +0.0$	
Ave +0.0 +0.0 -3.6	
353 14643.070 24.9 +0.0 +3.3 +11.6 -35.2 +0.0 46.0 54.0 -8.0	Vert
M +1.8 +39.4 +0.2 +0.0	
Ave +0.0 +0.0 +0.0	
^ 14643.070 35.3 +0.0 +3.3 +11.6 -35.2 +0.0 56.4 54.0 +2.4	Vert
M +1.8 +39.4 +0.2 +0.0	
+0.0 +0.0 +0.0	
^ 14643.080 32.7 +0.0 +3.3 +11.6 -35.2 +0.0 53.8 54.0 -0.2	Vert
M +1.8 +39.4 +0.2 +0.0	
+0.0 +0.0 +0.0	
^ 14643.000 32.6 +0.0 +3.3 +11.6 -35.2 +0.0 53.7 54.0 -0.3	Vert
M +1.8 +39.4 +0.2 +0.0	
+0.0 +0.0 +0.0	
357 12397.320 34.7 +0.0 +3.2 +10.5 -36.5 +0.0 46.0 54.0 -8.0	Horiz
M $+1.5 +35.8 +0.4 +0.0$	
Ave +0.0 +0.0 -3.6	
358 7216.400M 41.9 +0.0 +2.4 +7.8 -37.0 +0.0 46.0 54.0 -8.0	Horiz
Ave $+1.2 +33.1 +0.2 +0.0$	
+0.0 +0.0 -3.6	
359 17357.310 20.2 +0.0 +3.7 +12.7 -34.2 +0.0 46.0 54.0 -8.0	Vert
M +1.9 +40.0 +1.7 +0.0	
Ave +0.0 +0.0 +0.0	
^ 17357.310 29.4 +0.0 +3.7 +12.7 -34.2 +0.0 55.2 54.0 +1.2	Vert
M $+1.9 +40.0 +1.7 +0.0$	
+0.0 +0.0 +0.0	
361 14636.840 24.9 +0.0 +3.3 +11.6 -35.2 +0.0 46.0 54.0 -8.0	Horiz
M +1.8 +39.4 +0.2 +0.0	
Ave +0.0 +0.0 +0.0	
^ 14636.830 35.0 +0.0 +3.3 +11.6 -35.2 +0.0 56.1 54.0 +2.1	Horiz
M +1.8 +39.4 +0.2 +0.0	
+0.0 +0.0 +0.0	



△ 14626.9 <b>2</b> 0	22.6		12.2	116	25.2		517	54.0	+0.7	Hamin
^ 14636.820	33.6	+0.0	+3.3 +39.4	+11.6	-35.2 +0.0	+0.0	54.7	54.0	+0.7	Horiz
М		$^{+1.8}_{+0.0}$	+39.4 +0.0	+0.2 +0.0	$\pm 0.0$					
^ 14636.840	33.2	+0.0	+3.3	+11.6	-35.2	+0.0	54.3	54.0	+0.3	Horiz
M	33.2	+0.0 $+1.8$	+39.4	+11.0 +0.2	+0.0	$\pm 0.0$	54.5	54.0	$\pm 0.5$	HOLIZ
141		+0.0	+0.0	+0.2 +0.0	+0.0					
365 7213.365M	41.8	+0.0	+0.0	+7.8	-37.0	+0.0	45.9	54.0	-8.1	Horiz
Ave	41.0	+1.2	+33.1	+0.2	+0.0	10.0	43.9	54.0	-0.1	TIOTIZ
1100		+0.0	+0.0	-3.6	10.0					
^ 7213.423M	50.8	+0.0	+2.4	+7.8	-37.0	+0.0	58.5	54.0	+4.5	Horiz
/213.125141	20.0	+1.2	+33.1	+0.2	+0.0	0.0	50.5	51.0	1.5	TIONZ
		+0.0	+0.0	+0.2	0.0					
^ 7213.400M	50.3	+0.0	+2.4	+7.8	-37.0	+0.0	58.0	54.0	+4.0	Horiz
/215.400141	50.5	+1.2	+33.1	+0.2	+0.0	10.0	50.0	54.0	14.0	TIOTIZ
		+0.0	+0.0	+0.2	0.0					
^ 7213.365M	48.9	+0.0	+2.4	+7.8	-37.0	+0.0	56.6	54.0	+2.6	Horiz
/215.505141	10.9	+1.2	+33.1	+0.2	+0.0	0.0	50.0	51.0	12.0	TIONZ
		+0.0	+0.0	+0.0	0.0					
^ 7213.446M	48.8	+0.0	+2.4	+7.8	-37.0	+0.0	56.5	54.0	+2.5	Horiz
/213.110001	10.0	+1.2	+33.1	+0.2	+0.0	0.0	00.0	0 1.0	- 2.0	110112
		+0.0	+0.0	+0.0	0.0					
^ 7213.383M	47.4	+0.0	+2.4	+7.8	-37.0	+0.0	55.1	54.0	+1.1	Horiz
, 215.505111	.,	+1.2	+33.1	+0.2	+0.0	0.0	00.1	5 1.0		110112
		+0.0	+0.0	+0.0						
^ 7213.458M	42.8	+0.0	+2.4	+7.8	-37.0	+0.0	50.5	54.0	-3.5	Horiz
, _ 10. 10 01.11		+1.2	+33.1	+0.2	+0.0	0.0	00.0	0 110	0.0	TIOTIL
		+0.0	+0.0	+0.0						
372 12202.370	35.1	+0.0	+3.1	+10.4	-36.6	+0.0	45.8	54.0	-8.2	Vert
М		+1.5	+35.7	+0.2	+0.0					
Ave		+0.0	+0.0	-3.6						
^ 12202.340	39.0	+0.0	+3.1	+10.4	-36.6	+0.0	53.3	54.0	-0.7	Vert
М		+1.5	+35.7	+0.2	+0.0					
		+0.0	+0.0	+0.0						
374 12402.410	34.4	+0.0	+3.2	+10.5	-36.5	+0.0	45.7	54.0	-8.3	Horiz
М		+1.5	+35.8	+0.4	+0.0					
Ave		+0.0	+0.0	-3.6						
375 7213.446M	41.6	+0.0	+2.4	+7.8	-37.0	+0.0	45.7	54.0	-8.3	Horiz
Ave		+1.2	+33.1	+0.2	+0.0					
		+0.0	+0.0	-3.6						
376 7438.413M	42.1	+0.0	+2.4	+7.8	-37.5	+0.0	45.7	54.0	-8.3	Horiz
Ave		+1.2	+33.2	+0.1	+0.0					
		+0.0	+0.0	-3.6						
377 17076.230	24.8	+0.0	+3.6	+12.5	-34.3	+0.0	45.7	54.0	-8.3	Horiz
М		+2.1	+39.2	+1.4	+0.0					
Ave		+0.0	+0.0	-3.6						
^ 17076.230	33.6	+0.0	+3.6	+12.5	-34.3	+0.0	58.1	54.0	+4.1	Horiz
М		+2.1	+39.2	+1.4	+0.0					
		+0.0	+0.0	+0.0						
379 4809.000M	44.2	+0.0	+1.9	+6.1	-37.8	+0.0	45.6	54.0	-8.4	Vert
		+1.2	+29.9	+0.1	+0.0					
		+0.0	+0.0	+0.0						



200 14(2( 020	24.5		12.2	111	25.2		15 (	54.0	0.4	II.
380 14636.820	24.5	+0.0	+3.3 +39.4	+11.6 +0.2	-35.2	+0.0	45.6	54.0	-8.4	Horiz
M Ave		+1.8 +0.0	+39.4 +0.0	+0.2 +0.0	+0.0					
^ 14636.730	34.6	+0.0	+3.3	+11.6	-35.2	+0.0	55.7	54.0	+1.7	Horiz
M	54.0	+0.0 +1.8	+39.4	+0.2	+0.0	10.0	55.7	54.0	1./	TIOTIZ
111		+0.0	+0.0	+0.2 $+0.0$	10.0					
382 16838.530	22.4	+0.0	+3.6	+12.3	-34.5	+0.0	45.6	54.0	-8.4	Vert
M	22.7	+2.2	+38.4	+1.2	+0.0	0.0	45.0	54.0	0.4	Vert
Ave		+0.0	+0.0	+0.0	0.0					
^ 16838.530	31.9	+0.0	+3.6	+12.3	-34.5	+0.0	55.1	54.0	+1.1	Vert
M	01.9	+2.2	+38.4	+1.2	+0.0	0.0	00.1	0		
		+0.0	+0.0	+0.0						
384 7213.420M	41.4	+0.0	+2.4	+7.8	-37.0	+0.0	45.5	54.0	-8.5	Vert
Ave		+1.2	+33.1	+0.2	+0.0					
		+0.0	+0.0	-3.6						
385 14643.010	24.4	+0.0	+3.3	+11.6	-35.2	+0.0	45.5	54.0	-8.5	Horiz
М		+1.8	+39.4	+0.2	+0.0					
Ave		+0.0	+0.0	+0.0						
^ 14643.030	37.1	+0.0	+3.3	+11.6	-35.2	+0.0	58.2	54.0	+4.2	Horiz
М		+1.8	+39.4	+0.2	+0.0					
		+0.0	+0.0	+0.0						
^ 14642.970	34.4	+0.0	+3.3	+11.6	-35.2	+0.0	55.5	54.0	+1.5	Horiz
М		+1.8	+39.4	+0.2	+0.0					
		+0.0	+0.0	+0.0						
^ 14643.010	34.0	+0.0	+3.3	+11.6	-35.2	+0.0	55.1	54.0	+1.1	Horiz
М		+1.8	+39.4	+0.2	+0.0					
		+0.0	+0.0	+0.0						
389 4810.900M	44.1	+0.0	+1.9	+6.1	-37.8	+0.0	45.5	54.0	-8.5	Vert
		+1.2	+29.9	+0.1	+0.0					
		+0.0	+0.0	+0.0						
390 14426.610	28.1	+0.0	+3.3	+11.6	-35.3	+0.0	45.5	54.0	-8.5	Vert
М		+1.7	+39.5	+0.2	+0.0					
Ave	22.6	+0.0	+0.0	-3.6	25.2		54.6	54.0	10.0	<b>T</b> 7 (
^ 14426.610	33.6	+0.0	+3.3	+11.6	-35.3	+0.0	54.6	54.0	+0.6	Vert
М		+1.7	+39.5	+0.2	+0.0					
^ 14426.680	32.0	+0.0 +0.0	+0.0 +3.3	+0.0 +11.6	25.2	+0.0	53.0	54.0	-1.0	Vert
M 14420.080	52.0		+3.5			+0.0	55.0	54.0	-1.0	ven
1V1		+0.0	+39.3 +0.0	+0.2 +0.0	0.0					
393 14432.930	24.5	+0.0	+3.3	+11.6	-35.3	+0.0	45.5	54.0	-8.5	Vert
M	24.3	+0.0 $+1.7$	+39.5	+0.2	+0.0	+ 0.0	чЈ.Ј	54.0	-0.5	vert
Ave		+0.0	+0.0	+0.2 +0.0	0.0					
^ 14432.930	33.8	+0.0	+3.3	+11.6	-35.3	+0.0	54.8	54.0	+0.8	Vert
M	55.0	+1.7	+39.5	+0.2	+0.0	. 0.0	5 1.0	J 1.0	0.0	, 011
		+0.0	+0.0	+0.2	0.0					
^ 14433.010	33.7	+0.0	+3.3	+11.6	-35.3	+0.0	54.7	54.0	+0.7	Vert
M	55.1	+1.7	+39.5	+0.2	+0.0	0.0	<i>ci</i>	0 1.0	0.7	, 011
		+0.0	+0.0	+0.0	0.0					
^ 14432.870	33.0	+0.0	+3.3	+11.6	-35.3	+0.0	54.0	54.0	+0.0	Vert
M	22.0	+1.7	+39.5	+0.2	+0.0	0.0		20	0.0	
		+0.0	+0.0	+0.0						
L										



A 144	22.000	22.2		12.2	111 (	25.2		52.2	54.0	07	<b>X</b> 7 4
^ 144		32.3	+0.0	+3.3	+11.6	-35.3	+0.0	53.3	54.0	-0.7	Vert
	М		+1.7	+39.5	+0.2	+0.0					
200 1(0	21.000	25.0	+0.0	+0.0	+0.0	24.5		45.4	54.0	0.6	
398 168		25.9	+0.0	+3.6	+12.3	-34.5	+0.0	45.4	54.0	-8.6	Horiz
	М		+2.2	+38.3	+1.2	+0.0					
Ave			+0.0	+0.0	-3.6					• •	
^ 168		33.9	+0.0	+3.6	+12.3	-34.5	+0.0	57.0	54.0	+3.0	Horiz
	М		+2.2	+38.3	+1.2	+0.0					
			+0.0	+0.0	+0.0						
^ 168		33.6	+0.0	+3.6	+12.3	-34.5	+0.0	56.7	54.0	+2.7	Horiz
	М		+2.2	+38.3	+1.2	+0.0					
			+0.0	+0.0	+0.0						
401 744	1.440M	41.8	+0.0	+2.4	+7.8	-37.5	+0.0	45.4	54.0	-8.6	Vert
Ave			+1.2	+33.2	+0.1	+0.0					
			+0.0	+0.0	-3.6						
^ 744	1.440M	48.8	+0.0	+2.4	+7.8	-37.5	+0.0	56.0	54.0	+2.0	Vert
			+1.2	+33.2	+0.1	+0.0					
			+0.0	+0.0	+0.0						
^ 744	1.499M	47.7	+0.0	+2.4	+7.8	-37.5	+0.0	54.9	54.0	+0.9	Vert
			+1.2	+33.2	+0.1	+0.0					
			+0.0	+0.0	+0.0						
^ 744	1.417M	47.5	+0.0	+2.4	+7.8	-37.5	+0.0	54.7	54.0	+0.7	Vert
			+1.2	+33.2	+0.1	+0.0					
			+0.0	+0.0	+0.0						
^ 744	1.470M	46.5	+0.0	+2.4	+7.8	-37.5	+0.0	53.7	54.0	-0.3	Vert
			+1.2	+33.2	+0.1	+0.0					
			+0.0	+0.0	+0.0						
^ 744	1.467M	44.9	+0.0	+2.4	+7.8	-37.5	+0.0	52.1	54.0	-1.9	Vert
			+1.2	+33.2	+0.1	+0.0					
			+0.0	+0.0	+0.0						
407 122		31.1	+0.0	+3.1	+10.4	-36.6	+0.0	45.4	54.0	-8.6	Vert
	М		+1.5	+35.7	+0.2	+0.0					
Ave			+0.0	+0.0	+0.0						
408 168		22.2	+0.0	+3.6	+12.3	-34.5	+0.0	45.4	54.0	-8.6	Horiz
	М		+2.2	+38.4	+1.2	+0.0					
Ave			+0.0	+0.0	+0.0						
409 121		34.6	+0.0	+3.1	+10.4	-36.6	+0.0	45.3	54.0	-8.7	Vert
				+35.7		+0.0					
Ave			+0.0	+0.0	-3.6						
410 168		25.7	+0.0	+3.6	+12.3	-34.5	+0.0	45.3	54.0	-8.7	Horiz
	М		+2.2	+38.4	+1.2	+0.0					
Ave			+0.0	+0.0	-3.6						
^ 168		35.2	+0.0	+3.6	+12.3	-34.5	+0.0	58.4	54.0	+4.4	Horiz
	М		+2.2	+38.4	+1.2	+0.0					
			+0.0	+0.0	+0.0						
^ 168		32.1	+0.0	+3.6	+12.3	-34.5	+0.0	55.3	54.0	+1.3	Horiz
	М		+2.2	+38.4	+1.2	+0.0					
			+0.0	+0.0	+0.0						
413 170	83.430	24.4	+0.0	+3.6	+12.5	-34.3	+0.0	45.3	54.0	-8.7	Horiz
	М		+2.1	+39.2	+1.4	+0.0					
Ave			+0.0	+0.0	-3.6						



<u> </u>	1176 020	24.3	+0.0	+3.3	+11.6	-35.3	+0.0	15.2	54.0	07	Vort
414 1	4426.830 M	24.3	+0.0 +1.7	+3.3	+11.6 +0.2	-35.3 + 0.0	+0.0	45.3	54.0	-8.7	Vert
Δ	ve		+0.0	+39.3 +0.0	+0.2 +0.0	0.0					
	4426.830	34.8	+0.0	+3.3	+11.6	-35.3	+0.0	55.8	54.0	+1.8	Vert
	M	5-1.0	+1.7	+39.5	+0.2	+0.0	0.0	55.0	54.0	1.0	VOIT
			+0.0	+0.0	+0.0	0.0					
^ 1	4426.740	32.7	+0.0	+3.3	+11.6	-35.3	+0.0	53.7	54.0	-0.3	Vert
_	М		+1.7	+39.5	+0.2	+0.0					
			+0.0	+0.0	+0.0						
^ 1	4426.930	31.2	+0.0	+3.3	+11.6	-35.3	+0.0	52.2	54.0	-1.8	Vert
	М		+1.7	+39.5	+0.2	+0.0					
			+0.0	+0.0	+0.0						
418 7-	438.350M	41.6	+0.0	+2.4	+7.8	-37.5	+0.0	45.2	54.0	-8.8	Vert
Av	ve		+1.2	+33.2	+0.1	+0.0					
			+0.0	+0.0	-3.6						
^ 7.	438.350M	49.3	+0.0	+2.4	+7.8	-37.5	+0.0	56.5	54.0	+2.5	Vert
			+1.2	+33.2	+0.1	+0.0					
			+0.0	+0.0	+0.0						
^ 7	438.398M	47.8	+0.0	+2.4	+7.8	-37.5	+0.0	55.0	54.0	+1.0	Vert
			+1.2	+33.2	+0.1	+0.0					
			+0.0	+0.0	+0.0						
^ 7	438.392M	47.3	+0.0	+2.4	+7.8	-37.5	+0.0	54.5	54.0	+0.5	Vert
			+1.2	+33.2	+0.1	+0.0					
	120 2001 5	16.0	+0.0	+0.0	+0.0				54.0	. 0.1	
~ 7.	438.390M	46.9	+0.0	+2.4	+7.8	-37.5	+0.0	54.1	54.0	+0.1	Vert
			+1.2	+33.2	+0.1	+0.0					
∧ _7	438.375M	41.1	+0.0 +0.0	+0.0 +2.4	+0.0 +7.8	-37.5		48.3	54.0	-5.7	Vort
· /·	438.3/3M	41.1	+0.0 $+1.2$	+2.4 +33.2	+7.8 +0.1	-3/.5 +0.0	+0.0	48.5	54.0	-3.7	Vert
			+0.0	+0.0	+0.1 +0.0	10.0					
<u> </u>	810.792M	43.8	+0.0	+1.9	+6.1	-37.8	+0.0	45.2	54.0	-8.8	Horiz
424 4	010.792101	45.0	+1.2	+29.9	+0.1	+0.0	10.0	43.2	54.0	-0.0	TIOTIZ
			+0.0	+0.0	+0.0	0.0					
425 1	2202.420	34.4	+0.0	+3.1	+10.4	-36.6	+0.0	45.1	54.0	-8.9	Horiz
120 1	M	21.1	+1.5	+35.7	+0.2	+0.0	0.0	10.1	0 1.0	5.7	110112
A			+0.0	+0.0	-3.6						
	2202.350	44.4	+0.0	+3.1	+10.4	-36.6	+0.0	58.7	54.0	+4.7	Horiz
	М		+1.5			+0.0					
			+0.0	+0.0	+0.0						
^ 1	2202.360	43.4	+0.0	+3.1	+10.4	-36.6	+0.0	57.7	54.0	+3.7	Horiz
	М		+1.5	+35.7	+0.2	+0.0					
			+0.0	+0.0	+0.0						
^ 1	2202.420	42.6	+0.0	+3.1	+10.4	-36.6	+0.0	56.9	54.0	+2.9	Horiz
	М		+1.5	+35.7	+0.2	+0.0					
			+0.0	+0.0	+0.0						
^ 1	2202.390	40.4	+0.0	+3.1	+10.4	-36.6	+0.0	54.7	54.0	+0.7	Horiz
	М		+1.5	+35.7	+0.2	+0.0					
			+0.0	+0.0	+0.0						
430 1	2397.340	33.8	+0.0	+3.2	+10.5	-36.5	+0.0	45.1	54.0	-8.9	Horiz
	М		+1.5	+35.8	+0.4	+0.0					
A	ve		+0.0	+0.0	-3.6						



431 7216.420M	41.0	+0.0	+2.4	+7.8	-37.0	+0.0	45.1	54.0	-8.9	Vert
Ave		+1.2	+33.1	+0.2	+0.0					
A 7016 250M	42.2	+0.0	+0.0	-3.6	27.0		51.0	54.0	2.0	V. a. at
^ 7216.358M	43.3	$^{+0.0}_{+1.2}$	+2.4 +33.1	+7.8 +0.2	-37.0	+0.0	51.0	54.0	-3.0	Vert
		+1.2 $+0.0$	+33.1 +0.0	+0.2 +0.0	+0.0					
433 14642.970	23.9	+0.0 +0.0	+0.0 +3.3	+0.0 $+11.6$	-35.2	+0.0	45.0	54.0	-9.0	Horiz
433 14042.970 M	23.9	+0.0 $+1.8$	+39.4	+11.0 +0.2	+0.0	$\pm 0.0$	43.0	54.0	-9.0	HOUL
Ave		+0.0	+0.0	+0.2 +0.0	10.0					
434 12402.390	33.7	+0.0	+3.2	+10.5	-36.5	+0.0	45.0	54.0	-9.0	Horiz
434 12402.390 M	55.7	+1.5	+35.8	+10.3 +0.4	+0.0	10.0	43.0	54.0	-9.0	TIOTIZ
Ave		+0.0	+0.0	-3.6	10.0					
435 16831.230	21.9	+0.0	+3.6	+12.3	-34.5	+0.0	45.0	54.0	-9.0	Horiz
455 10851.250 M	21.9	+0.0 +2.2	+38.3	+12.3 +1.2	+0.0	10.0	43.0	54.0	-9.0	TIOTIZ
Ave		+0.0	+0.0	+0.0	10.0					
436 7318.400M	41.2	+0.0	+0.0	+7.8	-37.4	+0.0	45.0	54.0	-9.0	Vert
Ave	41.2	+0.0 $+1.2$	+33.2	+0.2	+0.0	10.0	45.0	54.0	-9.0	ven
1100		+0.0	+0.0	-3.6	10.0					
^ 7318.414M	49.5	+0.0	+2.4	+7.8	-37.4	+0.0	56.9	54.0	+2.9	Vert
/510.414141	чу.5	+1.2	+33.2	+0.2	+0.0	0.0	50.7	54.0	12.7	vert
		+0.0	+0.0	+0.0	0.0					
^ 7318.400M	48.3	+0.0	+2.4	+7.8	-37.4	+0.0	55.7	54.0	+1.7	Vert
/ 510.100101	10.5	+1.2	+33.2	+0.2	+0.0	0.0	00.1	51.0	. 1.7	vert
		+0.0	+0.0	+0.0	0.0					
^ 7318.425M	46.6	+0.0	+2.4	+7.8	-37.4	+0.0	54.0	54.0	+0.0	Vert
/ 510.125101	10.0	+1.2	+33.2	+0.2	+0.0	0.0	2 1.0	5 1.0	0.0	vert
		+0.0	+0.0	+0.0						
^ 7318.458M	46.5	+0.0	+2.4	+7.8	-37.4	+0.0	53.9	54.0	-0.1	Vert
		+1.2	+33.2	+0.2	+0.0					
		+0.0	+0.0	+0.0						
^ 7318.433M	45.9	+0.0	+2.4	+7.8	-37.4	+0.0	53.3	54.0	-0.7	Vert
		+1.2	+33.2	+0.2	+0.0					
		+0.0	+0.0	+0.0						
442 17076.450	24.1	+0.0	+3.6	+12.5	-34.3	+0.0	45.0	54.0	-9.0	Vert
М		+2.1	+39.2	+1.4	+0.0					
Ave		+0.0	+0.0	-3.6						
^ 17076.450	31.2	+0.0	+3.6	+12.5	-34.3	+0.0	55.7	54.0	+1.7	Vert
М		+2.1	+39.2	+1.4	+0.0					
		+0.0	+0.0	+0.0						
444 12022.260	34.3	+0.0	+3.1	+10.4	-36.5	+0.0	44.9	54.0	-9.1	Horiz
М		+1.5	+35.6	+0.1	+0.0					
Ave		+0.0	+0.0	-3.6						
445 12202.280	34.2	+0.0	+3.1	+10.4	-36.6	+0.0	44.9	54.0	-9.1	Horiz
М		+1.5	+35.7	+0.2	+0.0					
Ave		+0.0	+0.0	-3.6	-					
446 17356.100	22.7	+0.0	+3.7	+12.7	-34.2	+0.0	44.9	54.0	-9.1	Horiz
М		+1.9	+40.0	+1.7	+0.0					
Ave		+0.0	+0.0	-3.6	-					
^ 17356.100	29.9	+0.0	+3.7	+12.7	-34.2	+0.0	55.7	54.0	+1.7	Horiz
М		+1.9	+40.0	+1.7	+0.0					
		+0.0	+0.0	+0.0						



4.4.0	4050 02514	42.4		12.0		20.1		44.0	54.0	0.0	<b>T</b> <i>T</i> 4
448	4958.925M	43.4	+0.0	+2.0	+6.0	-38.1	+0.0	44.8	54.0	-9.2	Vert
			+1.2	+30.1	+0.2	+0.0					
440	4900 00014	12 1	+0.0	+0.0	+0.0	27.0		11.0	54.0	0.2	Hamin
449	4809.000M	43.4	$^{+0.0}_{+1.2}$	+1.9	+6.1	-37.8 +0.0	+0.0	44.8	54.0	-9.2	Horiz
			$^{+1.2}_{+0.0}$	+29.9 +0.0	+0.1 +0.0	$\pm 0.0$					
450	7321.450M	41.0	+0.0 +0.0	+0.0 +2.4	+0.0 +7.8	-37.4	+0.0	44.8	54.0	-9.2	Vert
430		41.0	+0.0 $+1.2$	+2.4 +33.2	+7.8 +0.2	+0.0	$\pm 0.0$	44.0	34.0	-9.2	ven
	Ave		+1.2 $+0.0$	+33.2 +0.0	-3.6	$\pm 0.0$					
^	7321.440M	49.6	+0.0	+2.4	+7.8	-37.4	+0.0	57.0	54.0	+3.0	Vert
	/321.440101	49.0	+1.2	+33.2	+0.2	+0.0	10.0	57.0	54.0	+3.0	ven
			+0.0	+0.0	+0.2 +0.0	10.0					
^	7321.450M	49.0	+0.0	+0.0	+7.8	-37.4	+0.0	56.4	54.0	+2.4	Vert
	/321.430101	49.0	+1.2	+33.2	+0.2	+0.0	10.0	50.4	54.0	12.4	ven
			+0.0	+0.0	+0.2 $+0.0$	10.0					
^	7321.433M	46.5	+0.0	+0.0	+7.8	-37.4	+0.0	53.9	54.0	-0.1	Vert
	/521.455101	ч0. <i>Э</i>	+1.2	+33.2	+0.2	+0.0	10.0	55.7	54.0	-0.1	ven
			+0.0	+0.0	+0.2	0.0					
^	7321.425M	46.3	+0.0	+2.4	+7.8	-37.4	+0.0	53.7	54.0	-0.3	Vert
	/521.125101	10.5	+1.2	+33.2	+0.2	+0.0	. 0.0	55.1	51.0	0.5	vent
			+0.0	+0.0	+0.0	0.0					
^	7321.417M	46.0	+0.0	+2.4	+7.8	-37.4	+0.0	53.4	54.0	-0.6	Vert
			+1.2	+33.2	+0.2	+0.0					
			+0.0	+0.0	+0.0						
^	7321.467M	42.0	+0.0	+2.4	+7.8	-37.4	+0.0	49.4	54.0	-4.6	Vert
			+1.2	+33.2	+0.2	+0.0					
			+0.0	+0.0	+0.0						
^	7321.442M	40.9	+0.0	+2.4	+7.8	-37.4	+0.0	48.3	54.0	-5.7	Vert
			+1.2	+33.2	+0.2	+0.0					
			+0.0	+0.0	+0.0						
458	7213.383M	40.6	+0.0	+2.4	+7.8	-37.0	+0.0	44.7	54.0	-9.3	Horiz
	Ave		+1.2	+33.1	+0.2	+0.0					
			+0.0	+0.0	-3.6						
459	7213.392M	40.6	+0.0	+2.4	+7.8	-37.0	+0.0	44.7	54.0	-9.3	Vert
	Ave		+1.2	+33.1	+0.2	+0.0					
			+0.0	+0.0	-3.6						
460	12197.380	33.9	+0.0	+3.1	+10.4	-36.6	+0.0	44.6	54.0	-9.4	Horiz
	M			+35.7		+0.0					
	Ave		+0.0	+0.0	-3.6						
461	7216.392M	40.5	+0.0	+2.4	+7.8	-37.0	+0.0	44.6	54.0	-9.4	Vert
	Ave		+1.2	+33.1	+0.2	+0.0					
	10005.050	24.2	+0.0	+0.0	-3.6	<u> </u>		44.5	<b>7</b> 4 0	<u> </u>	¥ 7
462	12027.370	34.0	+0.0	+3.1	+10.4	-36.5	+0.0	44.6	54.0	-9.4	Vert
	M		+1.5	+35.6	+0.1	+0.0					
	Ave 7210 200M	40.0	+0.0	+0.0	-3.6	27.4		11 6	54.0	0.4	II. '
	7318.380M	40.8	+0.0	+2.4	+7.8	-37.4	+0.0	44.6	54.0	-9.4	Horiz
	Ave		+1.2	+33.2	+0.2	+0.0					
^	7210 2001 4	40.0	+0.0	+0.0	-3.6	27.4		<b>EE (</b>	54.0	1 L L	TT'
~	7318.380M	48.2	+0.0	+2.4	+7.8	-37.4	+0.0	55.6	54.0	+1.6	Horiz
			$^{+1.2}_{+0.0}$	+33.2	+0.2	+0.0					
			±0.0	+0.0	+0.0						



A 7210 271M	47.0		12.4	17.0	27.4		5 A A	54.0	10.4	II
^ 7318.371M	47.0	+0.0	+2.4 +33.2	+7.8	-37.4 +0.0	+0.0	54.4	54.0	+0.4	Horiz
		+1.2 +0.0	+33.2 +0.0	+0.2 +0.0	$\pm 0.0$					
^ 7318.380M	46.8	+0.0	+2.4	+7.8	-37.4	+0.0	54.2	54.0	+0.2	Horiz
/ 318.380101	40.0	+0.0 +1.2	+33.2	+0.2	+0.0	10.0	34.2	54.0	10.2	TIOTIZ
		+0.0	+0.0	+0.2 $+0.0$	10.0					
^ 7318.417M	44.8	+0.0	+2.4	+7.8	-37.4	+0.0	52.2	54.0	-1.8	Horiz
/ 510.41/141	0	+1.2	+33.2	+0.2	+0.0	0.0	52.2	54.0	1.0	TIONZ
		+0.0	+0.0	+0.0	0.0					
468 7216.383M	40.5	+0.0	+2.4	+7.8	-37.0	+0.0	44.6	54.0	-9.4	Horiz
Ave		+1.2	+33.1	+0.2	+0.0	0.0		0 110	2	TIOTIL
		+0.0	+0.0	-3.6						
469 12022.320	33.9	+0.0	+3.1	+10.4	-36.5	+0.0	44.5	54.0	-9.5	Vert
М		+1.5	+35.6	+0.1	+0.0					
Ave		+0.0	+0.0	-3.6						
470 12027.360	33.9	+0.0	+3.1	+10.4	-36.5	+0.0	44.5	54.0	-9.5	Horiz
М		+1.5	+35.6	+0.1	+0.0					
Ave		+0.0	+0.0	-3.6						
471 17076.300	23.6	+0.0	+3.6	+12.5	-34.3	+0.0	44.5	54.0	-9.5	Horiz
М		+2.1	+39.2	+1.4	+0.0					
Ave		+0.0	+0.0	-3.6						
472 4880.900M	43.1	+0.0	+2.0	+6.0	-38.0	+0.0	44.5	54.0	-9.5	Vert
		+1.2	+30.0	+0.2	+0.0					
		+0.0	+0.0	+0.0						
473 14433.080	23.4	+0.0	+3.3	+11.6	-35.3	+0.0	44.4	54.0	-9.6	Vert
М		+1.7	+39.5	+0.2	+0.0					
Ave		+0.0	+0.0	+0.0						
474 17075.980	19.9	+0.0	+3.6	+12.5	-34.3	+0.0	44.4	54.0	-9.6	Vert
М		+2.1	+39.2	+1.4	+0.0					
Ave		+0.0	+0.0	+0.0						
^ 17075.980	30.2	+0.0	+3.6	+12.5	-34.3	+0.0	54.7	54.0	+0.7	Vert
М		+2.1	+39.2	+1.4	+0.0					
		+0.0	+0.0	+0.0						
476 14636.670	23.1	+0.0	+3.3	+11.6	-35.2	+0.0	44.2	54.0	-9.8	Vert
М		+1.8	+39.4	+0.2	+0.0					
Ave	24.5	+0.0	+0.0	+0.0	25.0		55.6	54.0	11.6	<b>X</b> 7 /
^ 14636.670	34.5	+0.0	+3.3	+11.6	-35.2	+0.0	55.6	54.0	+1.6	Vert
М				+0.2	+0.0					
A 14626 600	20.5	+0.0	+0.0	+0.0	-35.2		51 (	540	2.4	Vari
^ 14636.680	30.5	+0.0	+3.3	+11.6		+0.0	51.6	54.0	-2.4	Vert
М		$^{+1.8}_{+0.0}$	+39.4 +0.0	+0.2 +0.0	+0.0					
479 14883.050	27.0	+0.0 +0.0	+0.0 +3.4	+0.0 +11.5	-35.1	+0.0	44.2	54.0	-9.8	Vert
479 14883.050 M	27.0	+0.0 +1.9	+3.4 +38.8	+11.5 +0.3	+0.0	+0.0	44.2	54.0	-9.0	veit
Ave		+1.9 $+0.0$	+38.8 +0.0	-3.6	0.0					
^ 14883.050	33.6	+0.0	+3.4	+11.5	-35.1	+0.0	54.4	54.0	+0.4	Vert
M	55.0	+0.0 $+1.9$	+3.4 +38.8	+11.3 +0.3	+0.0	0.0	J7.4	54.0	0.4	v CI t
1V1		+0.0	+0.0	+0.3 +0.0	0.0					
^ 14882.970	33.0	+0.0	+3.4	+11.5	-35.1	+0.0	53.8	54.0	-0.2	Vert
M	55.0	+1.9	+38.8	+0.3	+0.0	0.0	55.0	54.0	-0.2	vert
141		+0.0	+0.0	+0.0	0.0					
		0.0	0.0	0.0						



	1 4000 000	201				0.5.5		50.0			* *
^	14883.030	30.1	+0.0		+11.5	-35.1	+0.0	50.9	54.0	-3.1	Vert
	М		+1.9	+38.8	+0.3	+0.0					
402	14076 020	27.0	+0.0	+0.0	+0.0	25.1		44.2	54.0	0.0	Vort
483	14876.830 M	27.0	$^{+0.0}_{+1.9}$	+3.4 +38.8	+11.5 +0.3	-35.1	+0.0	44.2	54.0	-9.8	Vert
	Ave		+1.9 $+0.0$	+38.8 +0.0	-3.6	+0.0					
	14876.830	33.4	+0.0	+0.0 +3.4	+11.5	-35.1	+0.0	54.2	54.0	+0.2	Vert
	14870.830 M	33.4	+0.0 $+1.9$	+3.4 +38.8	+11.3 +0.3	+0.0	$\pm 0.0$	34.2	54.0	±0.2	ven
	IVI		+1.9 $+0.0$	+0.0	+0.3 +0.0	10.0					
485	14876.700	27.0	+0.0	+3.4	+11.5	-35.1	+0.0	44.2	54.0	-9.8	Vert
-05	M	27.0	+1.9	+38.8	+0.3	+0.0	10.0	77.2	54.0	-7.0	vert
	Ave		+0.0	+0.0	-3.6	10.0					
	14876.700	33.6	+0.0	+3.4	+11.5	-35.1	+0.0	54.4	54.0	+0.4	Vert
	M	55.0	+1.9	+38.8	+0.3	+0.0	10.0	<i>J</i>	54.0	ч <b>0.</b> <del>ч</del>	vert
	141		+0.0	+0.0	+0.0	0.0					
^	14876.720	32.7	+0.0	+3.4	+11.5	-35.1	+0.0	53.5	54.0	-0.5	Vert
	M	52.7	+1.9	+38.8	+0.3	+0.0	0.0	00.0	51.0	0.0	vert
			+0.0	+0.0	+0.0	0.0					
488	14876.660	27.0	+0.0	+3.4	+11.5	-35.1	+0.0	44.2	54.0	-9.8	Horiz
	М	-7.0	+1.9	+38.8	+0.3	+0.0	0.0		0	2.0	TIOTIL
	Ave		+0.0	+0.0	-3.6						
	14876.660	33.4	+0.0	+3.4	+11.5	-35.1	+0.0	54.2	54.0	+0.2	Horiz
	М		+1.9	+38.8	+0.3	+0.0					
			+0.0	+0.0	+0.0						
490	16831.230	21.1	+0.0	+3.6	+12.3	-34.5	+0.0	44.2	54.0	-9.8	Vert
	Μ		+2.2	+38.3	+1.2	+0.0					
	Ave		+0.0	+0.0	+0.0						
^	16831.180	34.4	+0.0	+3.6	+12.3	-34.5	+0.0	57.5	54.0	+3.5	Vert
	Μ		+2.2	+38.3	+1.2	+0.0					
			+0.0	+0.0	+0.0						
^	16831.150	31.0	+0.0	+3.6	+12.3	-34.5	+0.0	54.1	54.0	+0.1	Vert
	М		+2.2	+38.3	+1.2	+0.0					
			+0.0	+0.0	+0.0						
^	16831.230	30.1	+0.0	+3.6	+12.3	-34.5	+0.0	53.2	54.0	-0.8	Vert
	М		+2.2	+38.3	+1.2	+0.0					
			+0.0	+0.0	+0.0			-			
^	16831.140	29.3	+0.0	+3.6	+12.3	-34.5	+0.0	52.4	54.0	-1.6	Vert
	М			+38.3		+0.0					
	1 (001 000	<b>0</b> 0 1	+0.0	+0.0	+0.0	<u> </u>					<b>T</b> T
^	16831.290	29.1	+0.0	+3.6	+12.3	-34.5	+0.0	52.2	54.0	-1.8	Vert
	М		+2.2	+38.3	+1.2	+0.0					
40.0	40(0.000) 5	10.0	+0.0	+0.0	+0.0	20.1		42.0	54.0	10.1	<b>N</b> <i>T</i>
496	4960.908M	42.6	+0.0	+2.0	+6.0	-38.1	+0.0	43.9	54.0	-10.1	Vert
			+1.2	+30.1	+0.1	+0.0					
407	4010 07514	10 5	+0.0	+0.0	+0.0	27.0		42.0	E 4 0	10.1	TT'
497	4810.975M	42.5	+0.0	+1.9	+6.1	-37.8	+0.0	43.9	54.0	-10.1	Horiz
			+1.2	+29.9	+0.1	+0.0					
400	1070 0501 5	40.4	+0.0	+0.0	+0.0	20.0		42.0	E 4 0	10.2	<b>V</b> 4
498	4878.858M	42.4	+0.0	+2.0	+6.0	-38.0	+0.0	43.8	54.0	-10.2	Vert
			+1.2	+30.0	+0.2	+0.0					
			+0.0	+0.0	+0.0						



400 4070 00514	41.0		10.0		20.0		12.2	54.0	10.0	TT ·
499 4879.005M	41.8	+0.0	+2.0	+6.0	-38.0	+0.0	43.2	54.0	-10.8	Horiz
		+1.2	+30.0	+0.2	+0.0					
500 1(001 540	20.0	+0.0	+0.0	+0.0	24.5		40.1	54.0	10.0	TT '
500 16831.540	20.0	+0.0	+3.6	+12.3	-34.5	+0.0	43.1	54.0	-10.9	Horiz
М		+2.2	+38.3	+1.2	+0.0					
Ave		+0.0	+0.0	+0.0						
^ 16831.440	27.8	+0.0	+3.6	+12.3	-34.5	+0.0	50.9	54.0	-3.1	Horiz
М		+2.2	+38.3	+1.2	+0.0					
		+0.0	+0.0	+0.0			1.0			
502 4808.795M	41.4	+0.0	+1.9	+6.1	-37.8	+0.0	42.8	54.0	-11.2	Horiz
		+1.2	+29.9	+0.1	+0.0					
		+0.0	+0.0	+0.0						
503 21649.390	41.0	+0.0	+0.0	+0.0	-33.3	-9.5	42.5	54.0	-11.5	Vert
М		+2.3	+0.0	+0.0	+40.6					
		+1.4	+0.0	+0.0						
504 21640.150	40.9	+0.0	+0.0	+0.0	-33.3	-9.5	42.4	54.0	-11.6	Horiz
М		+2.3	+0.0	+0.0	+40.6					
		+1.4	+0.0	+0.0						
505 4958.988M	40.8	+0.0	+2.0	+6.0	-38.1	+0.0	42.2	54.0	-11.8	Horiz
		+1.2	+30.1	+0.2	+0.0					
		+0.0	+0.0	+0.0						
506 4958.958M	40.6	+0.0	+2.0	+6.0	-38.1	+0.0	42.0	54.0	-12.0	Horiz
		+1.2	+30.1	+0.2	+0.0					
		+0.0	+0.0	+0.0						
507 4879.155M	40.6	+0.0	+2.0	+6.0	-38.0	+0.0	42.0	54.0	-12.0	Horiz
		+1.2	+30.0	+0.2	+0.0					
		+0.0	+0.0	+0.0						
508 12397.530	30.6	+0.0	+3.2	+10.5	-36.5	+0.0	41.9	54.0	-12.1	Vert
М		+1.5	+35.8	+0.4	+0.0					
Ave		+0.0	+0.0	-3.6						
^ 12397.530	39.1	+0.0	+3.2	+10.5	-36.5	+0.0	54.0	54.0	+0.0	Vert
М		+1.5	+35.8	+0.4	+0.0					
		+0.0	+0.0	+0.0						
510 4960.980M	40.2	+0.0	+2.0	+6.0	-38.1	+0.0	41.5	54.0	-12.5	Horiz
		+1.2	+30.1	+0.1	+0.0					
		+0.0	+0.0	+0.0						
511 21640.220	40.0	+0.0	+0.0	+0.0	-33.3	-9.5	41.5	54.0	-12.5	Vert
М		+2.3	+0.0		+40.6					
		+1.4	+0.0	+0.0						
512 4959.083M	39.9	+0.0	+2.0	+6.0	-38.1	+0.0	41.3	54.0	-12.7	Horiz
		+1.2	+30.1	+0.2	+0.0					
		+0.0	+0.0	+0.0						
513 4880.862M	39.8	+0.0	+2.0	+6.0	-38.0	+0.0	41.2	54.0	-12.8	Horiz
		+1.2	+30.0	+0.2	+0.0					
		+0.0	+0.0	+0.0						
514 4812.242M	39.7	+0.0	+1.9	+6.1	-37.8	+0.0	41.1	54.0	-12.9	Horiz
		+1.2	+29.9	+0.1	+0.0					
		+0.0	+0.0	+0.0						
515 4808.825M	39.7	+0.0	+1.9	+6.1	-37.8	+0.0	41.1	54.0	-12.9	Horiz
		+1.2	+29.9	+0.1	+0.0					
		+0.0	+0.0	+0.0						

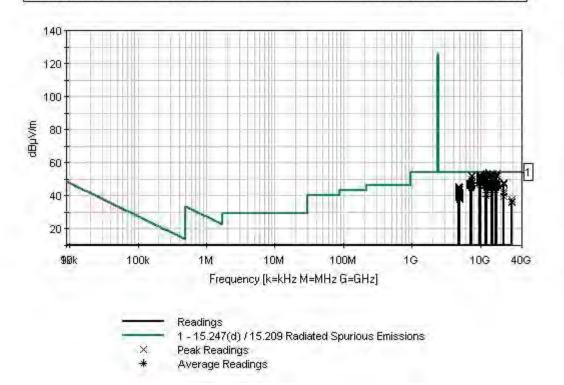


									10.0	
516 4810.872M	39.6	+0.0	+1.9	+6.1	-37.8	+0.0	41.0	54.0	-13.0	Vert
		+1.2	+29.9	+0.1	+0.0					
	20.6	+0.0	+0.0	+0.0	20.1		10.0	54.0	10.1	TT '
517 4961.067M	39.6	+0.0	+2.0	+6.0	-38.1	+0.0	40.9	54.0	-13.1	Horiz
		+1.2	+30.1	+0.1	+0.0					
510 4000 55() (	20.5	+0.0	+0.0	+0.0	20.0		10.0	54.0	10.1	<b>X</b> 7 /
518 4880.556M	39.5	+0.0	+2.0	+6.0	-38.0	+0.0	40.9	54.0	-13.1	Vert
		+1.2	+30.0	+0.2	+0.0					
510 4070 075M	20.5	+0.0	+0.0	+0.0	20.0		10.0	54.0	10.1	<b>N</b> <i>T</i> 4
519 4878.875M	39.5	+0.0	+2.0	+6.0	-38.0	+0.0	40.9	54.0	-13.1	Vert
		+1.2	+30.0	+0.2	+0.0					
5 <b>2</b> 0 4050 740 4	20.1	+0.0	+0.0	+0.0	20.1		10.5	54.0	12.5	<b>N</b> <i>T</i> 4
520 4958.740M	39.1	+0.0	+2.0	+6.0	-38.1	+0.0	40.5	54.0	-13.5	Vert
		+1.2	+30.1	+0.2	+0.0					
<b>501</b> 4000 (00) (	20.1	+0.0	+0.0	+0.0	20.0		10.5	54.0	12.5	TT '
521 4880.692M	39.1	+0.0	+2.0	+6.0	-38.0	+0.0	40.5	54.0	-13.5	Horiz
		+1.2	+30.0	+0.2	+0.0					
5 <b>22</b> 4050 500M	20.0	+0.0	+0.0	+0.0	20.1		10.2	54.0	12.7	<b>N</b> <i>T</i> (
522 4959.598M	39.0	+0.0	+2.0	+6.0	-38.1	+0.0	40.3	54.0	-13.7	Vert
		$^{+1.2}_{+0.0}$	+30.1	+0.1	+0.0					
522 4000 42214	20.0		+0.0	+0.0	27.0		40.2	54.0	12.7	<b>V</b>
523 4809.433M	38.9	+0.0	+1.9	+6.1	-37.8	+0.0	40.3	54.0	-13.7	Vert
		+1.2	+29.9	+0.1	+0.0					
504 4000 205M	20.5	+0.0	+0.0	+0.0	20.0		20.0	54.0	1 4 1	<b>V</b>
524 4880.325M	38.5	+0.0	+2.0 +30.0	+6.0	-38.0 +0.0	+0.0	39.9	54.0	-14.1	Vert
		$^{+1.2}_{+0.0}$	+30.0 +0.0	+0.2 +0.0	$\pm 0.0$					
525 21649.390	20.2		+0.0 +0.0	+0.0 +0.0	22.2	-9.5	39.8	54.0	-14.2	Vort
323 21049.390 M	38.3	$^{+0.0}_{+2.3}$	+0.0 +0.0	+0.0 +0.0	-33.3 +40.6	-9.5	39.8	54.0	-14.2	Vert
101		+2.3 $+1.4$	+0.0	+0.0	+40.0					
526 4959.200M	38.4	+0.0	+0.0 $+2.0$	+6.0	-38.1	+0.0	39.7	54.0	-14.3	Horiz
520 4959.200W	36.4	+1.2	+30.1	+0.0 +0.1	+0.0	10.0	39.1	54.0	-14.5	TIOTIZ
		+0.0	+0.0	+0.1	10.0					
527 4812.067M	38.3	+0.0	+1.9	+6.1	-37.8	+0.0	39.7	54.0	-14.3	Vert
<i>J27</i> 4012.007141	50.5	+1.2	+29.9	+0.1	+0.0	10.0	57.1	54.0	-14.5	ven
		+0.0	+0.0	+0.1	10.0					
528 12397.420	24.8	+0.0	+3.2	+10.5	-36.5	+0.0	39.7	54.0	-14.3	Vert
526 12577.420 M	<i>2</i> 1.0		+35.8		+0.0	. 0.0	57.1	J 1.0	17.5	, 011
Ave		+0.0	+0.0	+0.0	0.0					
529 4808.992M	38.2	+0.0	+1.9	+6.1	-37.8	+0.0	39.6	54.0	-14.4	Vert
12) 1000.)/2M	20.2	+1.2	+29.9	+0.1	+0.0	0.0	27.0	2 1.0		
		+0.0	+0.0	+0.0	0.0					
530 4880.617M	38.2	+0.0	+2.0	+6.0	-38.0	+0.0	39.6	54.0	-14.4	Horiz
	2 0. <b>2</b>	+1.2	+30.0	+0.2	+0.0	0.0	- > .0	2		
		+0.0	+0.0	+0.0						
531 4880.025M	37.8	+0.0	+2.0	+6.0	-38.0	+0.0	39.2	54.0	-14.8	Vert
	27.0	+1.2	+30.0	+0.2	+0.0	0.0		2		
		+0.0	+0.0	+0.0						
532 4958.492M	37.7	+0.0	+2.0	+6.0	-38.1	+0.0	39.1	54.0	-14.9	Vert
	- / • /	+1.2	+30.1	+0.2	+0.0			2		
		+0.0	+0.0	+0.0						



533	4877.950M	37.7	+0.0	+2.0	+6.0	-38.0	+0.0	39.1	54.0	-14.9	Vert
			+1.2	+30.0	+0.2	+0.0					
			+0.0	+0.0	+0.0						
534	4958.882M	37.3	+0.0	+2.0	+6.0	-38.1	+0.0	38.7	54.0	-15.3	Horiz
			+1.2	+30.1	+0.2	+0.0					
			+0.0	+0.0	+0.0						
535	4959.042M	36.7	+0.0	+2.0	+6.0	-38.1	+0.0	38.1	54.0	-15.9	Vert
			+1.2	+30.1	+0.2	+0.0					
			+0.0	+0.0	+0.0						
536	28865.650	39.1	+0.0	+0.0	+0.0	+0.0	-9.5	37.9	54.0	-16.1	Horiz
	М		+2.8	+0.0	+0.0	+0.0					
			+1.7	+3.8	+0.0						
537	28853.550	38.0	+0.0	+0.0	+0.0	+0.0	-9.5	36.8	54.0	-17.2	Horiz
	М		+2.8	+0.0	+0.0	+0.0					
			+1.7	+3.8	+0.0						
538	28853.550	37.4	+0.0	+0.0	+0.0	+0.0	-9.5	36.2	54.0	-17.8	Vert
	М		+2.8	+0.0	+0.0	+0.0					
			+1.7	+3.8	+0.0						
539	28853.750	37.2	+0.0	+0.0	+0.0	+0.0	-9.5	36.0	54.0	-18.0	Vert
	М		+2.8	+0.0	+0.0	+0.0					
			+1.7	+3.8	+0.0						

CKC Laboratories, Inc. Date: 10/16/2014 Time: 10:12:25 Silicon Laboratories, Inc. WO#: 95499 15:247(d) / 15:209 Radiated Spurious Emissions Test Distance: 3 Meters Sequence#: 2 Ext ATTN: 0 dB



Note: The plot was revised to correct an error and the date and time stamp were accidently updated to the current time. They should read 9/14/2014 at 13:44:41



## Band Edge

## **Test Conditions / Setup**

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • 714-993-6112

Customer: Specification: Work Order #:	Silicon Laboratories, Inc. Band Edge Compliance 95499
Test Type:	Maximized Emissions
Equipment:	Thin ZigBee-to-Ethernet gateway
Manufacturer:	Silicon Laboratories, Inc.
Model:	130-0880-000-A0
S/N:	70B3D555902A

Test Date: 09/10/2014

Tested By: S. Yamamoto

## Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02869	Spectrum Analyzer	E4440A	7/10/2014	7/10/2015
T2	ANP05421	Cable	Sucoflex 104A	1/8/2014	1/8/2016
Т3	ANP06661	Cable	LDF1-50	4/15/2014	4/15/2016
T4	AN00849	Horn Antenna	3115	3/18/2014	3/18/2016

## Equipment Under Test (\* = EUT):

Equipinent entite 1050 (	<b>E</b> (1),		
Function	Manufacturer	Model #	S/N
Thin ZigBee-to-Ethernet	Silicon Laboratories, Inc.	130-0880-000-A0	70B3D555902A
gateway*			

## Support Devices:

Function	Manufacturer	Model #	S/N
Laptop Computer	Lenovo	Thinkpad T500	L3B3906
AC to 6VDC Power Supply	Triad	WDU6-800	NA

## Test Conditions / Notes:

The equipment under test (EUT) is stand alone on the Styrofoam table top. The EUT is connected to a remotely located laptop computer via unshielded cat 5e cable. The computer is running Telnet which is commanding the EUT to the appropriate test frequencies.

The test frequencies are 2405MHz, 2440MHz, and 2480MHz.

An external AC to DC power supply is also connected to the EUT. Nominal voltage of the EUT is 6VDC.

Frequency range of measurement, 2400MHz to 2483.5MHz.

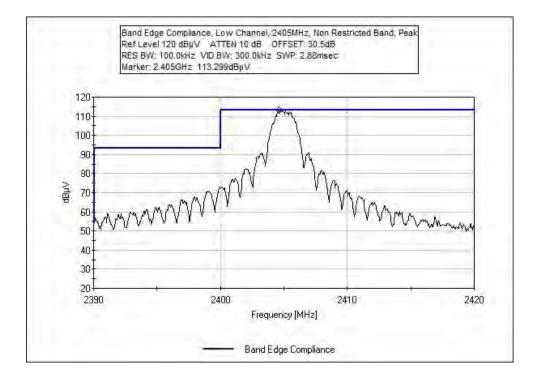
Temperature: 30°C Relative Humidity: 46% Pressure: 100kPa

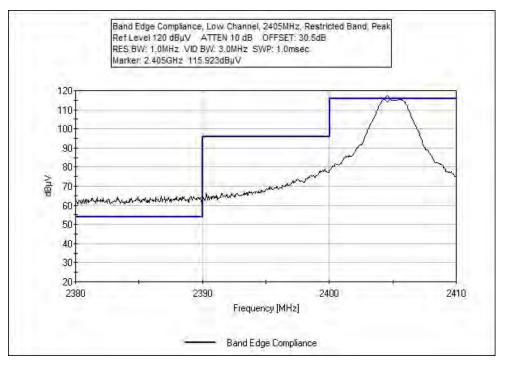
Site D

Frequency: 2405MHz. Firmware power setting = 0xff, +19dBm Frequency: 2440MHz. Firmware power setting = 0xfe, +18dBm Frequency: 2480MHz. Firmware power setting = 0xe6, -6dBm

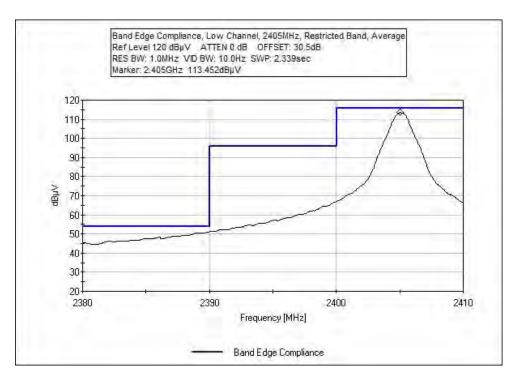


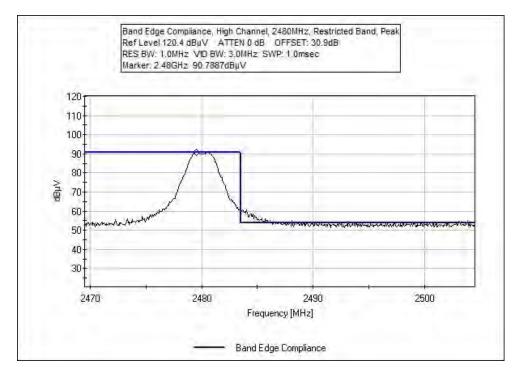
## **Test Data**



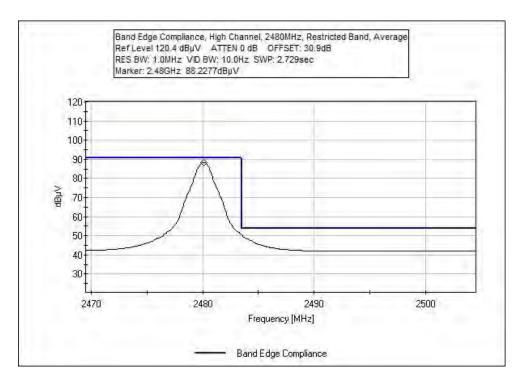














# **Test Setup Photos**



Radiated Spurious Emissions, 9kHz-40GHz Overall Test Setup



Band Edge Overall Test Setup



# 15. 247(e) Power Spectral Density

## **Test Conditions / Setup**

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • 714-993-6112

Customer: Specification: Work Order #:	Silicon Laboratories, Inc. 15.247(e) Power Spectral Density 95499		
Test Type:	Maximized Emissions	Test Date:	09/10/2014
Equipment:	Thin ZigBee-to-Ethernet gateway		
Manufacturer:	Silicon Laboratories, Inc.	Tested By:	S. Yamamoto
Model:	130-0880-000-A0		
S/N:	70B3D555902A		

### **Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02869	Spectrum Analyzer	E4440A	7/10/2014	7/10/2015
T2	ANP05421	Cable	Sucoflex 104A	1/8/2014	1/8/2016
Т3	ANP06661	Cable	LDF1-50	4/15/2014	4/15/2016
T4	AN00849	Horn Antenna	3115	3/18/2014	3/18/2016

## Equipment Under Test (\* = EUT):

Function	Manufacturer	Model #	S/N
Thin ZigBee-to-Ethernet	Silicon Laboratories, Inc.	130-0880-000-A0	70B3D555902A
gateway*			

### Support Devices:

Function	Manufacturer	Model #	S/N
Laptop Computer	Lenovo	Thinkpad T500	L3B3906
AC to 6Vdc Power Supply	Triad	WDU6-800	NA

### Test Conditions / Notes:

The equipment under test (EUT) is stand alone on the Styrofoam table top. The EUT is connected to a remotely located laptop computer via unshielded cat 5e cable. The computer is running Telnet which is commanding the EUT to the appropriate test frequencies. The test frequencies are 2405MHz, 2440MHz, and 2480MHz.

An external AC to DC power supply is also connected to the EUT.

Nominal voltage of the EUT is 6VDC.

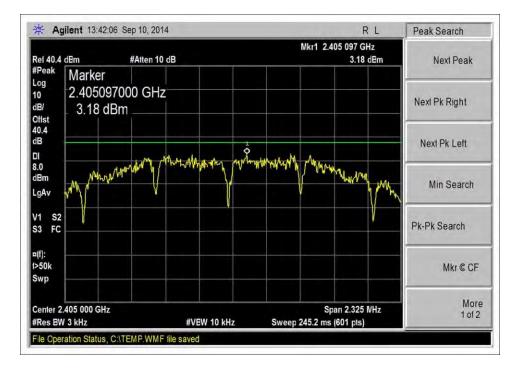
Frequency range of measurement, 2400MHz to 2483.5MHz.

Temperature: 30°C Relative Humidity: 46% Pressure: 100kPa Site D

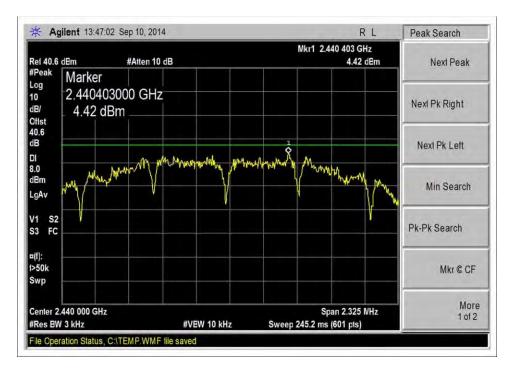
Frequency: 2405MHz. Firmware power setting = 0xff, +19dBm Frequency: 2440MHz. Firmware power setting = 0xfe, +18dBm Frequency: 2480MHz. Firmware power setting = 0xe6, -6dBm



## **Test Data**

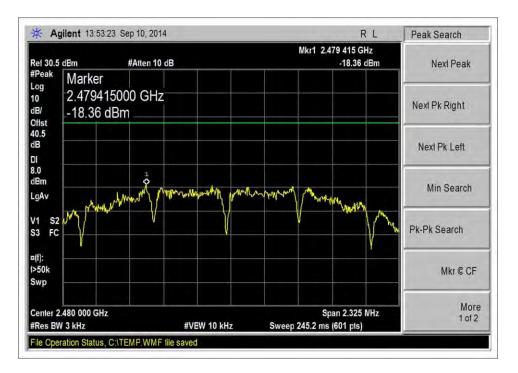


### Low Channel, 2405MHz



Middle Channel, 2440MHz





High Channel, 2480MHz

**Test Setup Photo** 





# **APPENDIX A: CUSTOMER PROVIDED INFORMATION**

## DUTY CYCLE CORRECTION FACTOR CALCULATION

## **CONSTANTS**

One symbol time = 0.016 msec One byte = 2 symbols One byte time = 0.032 msec 802.15.4 packet overhead = 6 bytes 802.15.4 maximum packet size, excluding payload = 127 bytes 802.15.4 maximum total packet size = 133 bytes 802.15.4 ACK packet size = 5 bytes plus 6 bytes overhead = 11 bytes 802.15.4 backoff period after receipt of msg = 70 symbols 802.15.4 clear channel assessment (CCA) period before tx = 8 symbols

## ON TIME

802.15.4 Max packet TX time = 133 bytes \* 0.032 ms/byte = 4.256 msec TOTAL ON TIME = 4.256 msec

## OFF TIME

Minimum delay before start of recepit of ACK = 0.192 msec Time to receive ACK = 11 bytes \* 0.032 ms/byte = 0.352 msec 802.15.4 backoff time = 70 symbols \* 0.016 ms/symbol = 1.12 msec Minimum ACK processing time = 0.2 msec 802.15.4 CCA time = 8 symbols \* 0.016 ms/sym = 0.128 msec RX-to-TX hardware turnaround time = 0.192 msec TOTAL OFF TIME = 0.192+0.352+1.12+.2+0.128+0.192 = 2.184 msec

## DUTY CYCLE

Since the total cycle time is less than 100 msec, we assume continuous transmission over a 100msec window, but the overall on and off times will be multiples of the above numbers. Thus, the worst- case duty cycle is: (TOTAL ON TIME) / (TOTAL ON TIME + TOTAL OFF TIME) 4.256 / (4.256 + 2.184) 4.256 / 6.44 = 0.6609 or 66.09 %,

DUTY CYCLE CORRECTION FACTOR DCCF = 20 \* log10 (duty cycle) = 20 \* log10 (0.6609) = -3.597 dB

 $P_t = 0.0425 W$ 



# SUPPLEMENTAL INFORMATION

## **Measurement Uncertainty**

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

The reported measurement uncertainties are calculated based on the worst case of all laboratory environments from CKC Laboratories, Inc. test sites. Only those parameters which require estimation of measurement uncertainty are reported. The reported worst case measurement uncertainty is less than the maximum values derived in CISPR 16-4-2. Reported uncertainties 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  $dB\mu V/m$ , the spectrum analyzer reading in  $dB\mu V$  was corrected by using the following formula. This reading was then compared to the applicable specification limit.



SAMPLE CALCULATIONS					
	Meter reading (dBµV)				
+	Antenna Factor	(dB)			
+	Cable Loss	(dB)			
-	Distance Correction	(dB)			
-	Preamplifier Gain	(dB)			
=	Corrected Reading	(dBµV/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 carrot ("^") 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.