

Indyme Solutions, LLC

TEST REPORT FOR

Shopper Help Button

Model: CB965*

(*See Appendix A for Manufacturer Declaration)

Tested to The Following Standards:

FCC Part 15 Subpart C Section(s)

**15.207 & 15.247
(FHSS 902-928 MHz)**

Report No.: 102143-6

Date of issue: February 21, 2019



Test Certificate # 803.02

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

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

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ADMINISTRATIVE INFORMATION

Test Report Information

REPORT PREPARED FOR:

Indyme Solutions, LLC
8295 Aero Place
San Diego CA 92123

Representative: Carl Lozada
Customer Reference Number: 6453-00

DATE OF EQUIPMENT RECEIPT:**DATE(S) OF TESTING:****REPORT PREPARED BY:**

Terri Rayle
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

Project Number: 102143

January 8, 2019

January 8, and 22-23, 2019

Report Authorization

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

A handwritten signature in black ink, reading "Steve Behm", is positioned above a horizontal line.

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

Test Facility Information



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

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

Software Versions

CKC Laboratories Proprietary Software	Version
EMITest Emissions	5.03.11

Site Registration & Accreditation Information

Location	NIST CB #	TAIWAN	CANADA	FCC	JAPAN
Brea A, CA	US0060	SL2-IN-E-1146R	3082D-1	US1025	A-0147

SUMMARY OF RESULTS

Standard / Specification: FCC Part 15 Subpart C - 15.247 (FHSS 902-928MHz)

Test Procedure	Description	Modifications	Results
15.247(a)(1)(i)	Occupied Bandwidth	NA	Pass
15.247(a)(1)	Carrier Separation	NA	Pass
15.247(a)(1)(i)	Number of Hopping Channels	NA	Pass
15.247(a)(1)(i)	Average Time of Occupancy	NA	Pass
15.247(b)(2)	Output Power	NA	Pass
15.247(d)	RF Conducted Emissions & Band Edge	NA	NA1
15.247(d)	Radiated Emissions & Band Edge	NA	Pass
15.207	AC Conducted Emissions	NA	NA2

NA = Not Applicable

NA1 = Not applicable because the EUT does not have the external antenna connector.

NA2 = Not applicable because the EUT does not operate on AC power.

ISO/IEC 17025 Decision Rule

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

Modifications During Testing

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

Summary of Conditions

No modifications were made during testing.

Modifications listed above must be incorporated into all production units.

Conditions During Testing

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

Summary of Conditions

None

EQUIPMENT UNDER TEST (EUT)

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

Configuration 1

Equipment Tested:

Device	Manufacturer	Model #	S/N
Shopper Help Button	Indyme Solutions, LLC	CB965	0C001284

Support Equipment:

Device	Manufacturer	Model #	S/N
None			

General Product Information:

Product Information	Manufacturer-Provided Details
Equipment Type:	Stand-Alone Equipment
Type of Wideband System:	FHSS
Operating Frequency Range:	918.1-923.0MHz
Number of Hopping Channels:	50 (100kHz separation)
Modulation Type(s):	GFSK
Maximum Duty Cycle:	1.1375%
Number of TX Chains:	1
Antenna Type(s) and Gain:	PCB Trace, 1.282 dBi
Beamforming Type:	NA
Antenna Connection Type:	Integral
Nominal Input Voltage:	3Vdc (2x CR123 batteries)
Firmware / Software used for Test:	Rev A

FCC Part 15 Subpart C

15.247(a) Transmitter Characteristics

Test Setup/Conditions			
Test Location:	Brea Lab A	Test Engineer:	Don Nguyen/ E. Wong
Test Method:	ANSI C63.10 (2013)	Test Date(s):	1/8/2019 and 1/22/2019
Configuration:	1		
Test Setup:	The equipment under test (EUT) is placed on tabletop and set to transmit continuously. The EUT is rotated in 3 axis. Operating frequency: 918.1MHz to 923.0MHz. Tested frequencies: 918.1MHz, 920.6MHz, 923.0MHz. Frequency range of data sheet 902-928MHz		

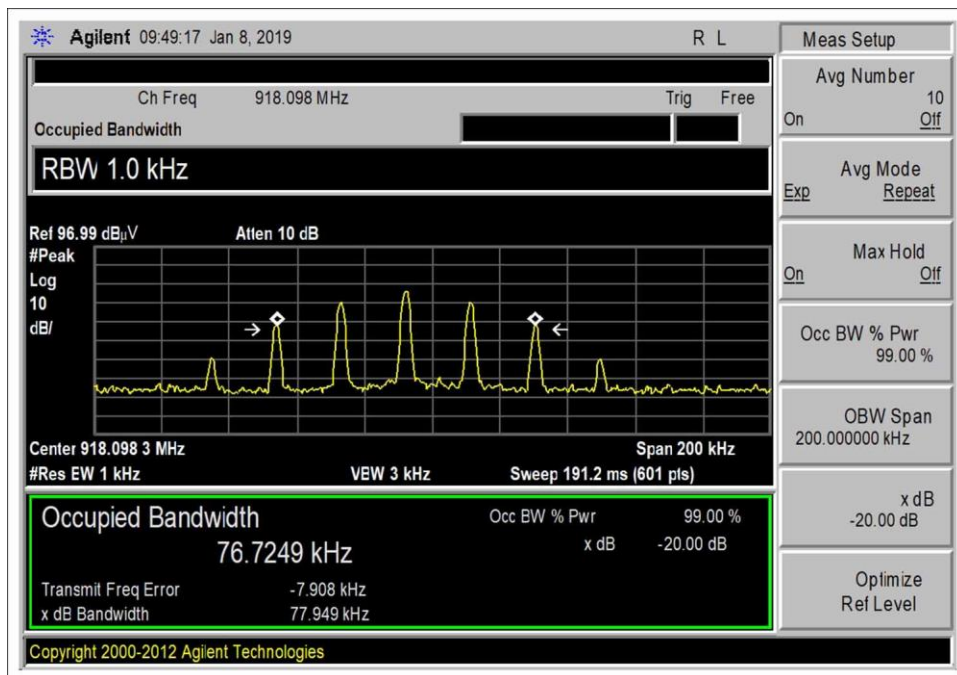
Environmental Conditions			
Temperature (°C)	21.3	Relative Humidity (%):	40

Test Equipment					
Asset#	Description	Manufacturer	Model	Cal Date	Cal Due
00309	Preamplifier	HP	8447D	2/19/2018	2/19/2020
01995	Biconilog Antenna	Chase	CBL6111C	4/23/2018	4/23/2020
P05275	Attenuator	Weinschel	1W	4/5/2018	4/5/2020
P05050	Cable	Pasternack	RG223/U	1/20/2017	1/20/2019
P05050	Cable	Pasternack	RG223/U	12/24/2018	12/24/2020
P05198	Cable	Belden	8268	12/4/2018	12/4/2020
02869	Spectrum Analyzer	Agilent	E4440A	8/10/2018	8/10/2019

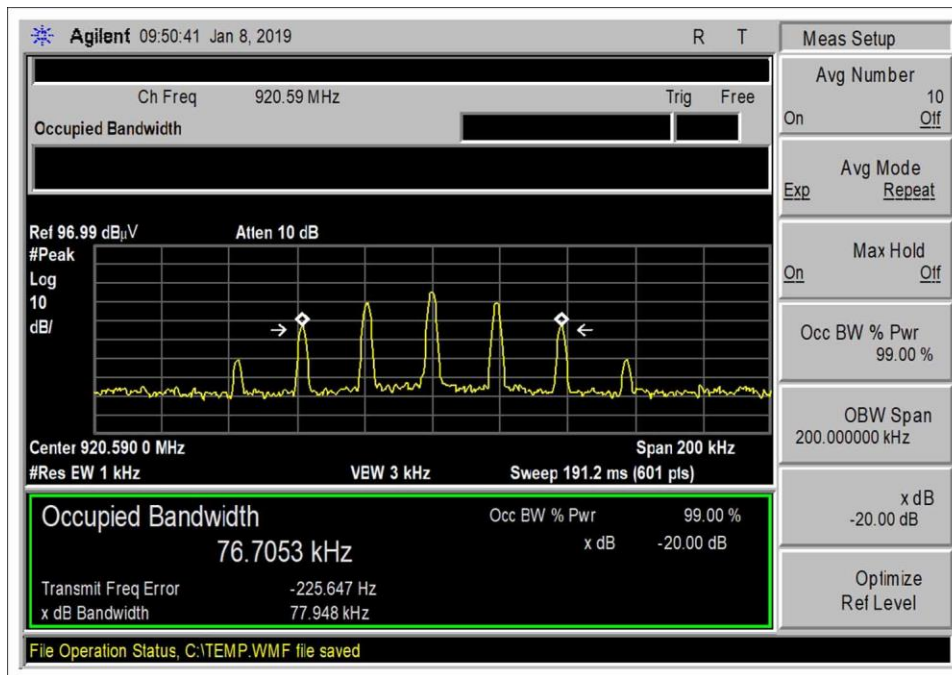
15.247(a)(1) 20 dB Bandwidth

Test Data Summary					
Frequency (MHz)	Antenna Port	Modulation	Measured (kHz)	Limit (kHz)	Results
918.1	1	GFSK	77.949	≤500	Pass
920.6	1	GFSK	77.948	≤500	Pass
923.0	1	GFSK	77.944	≤500	Pass

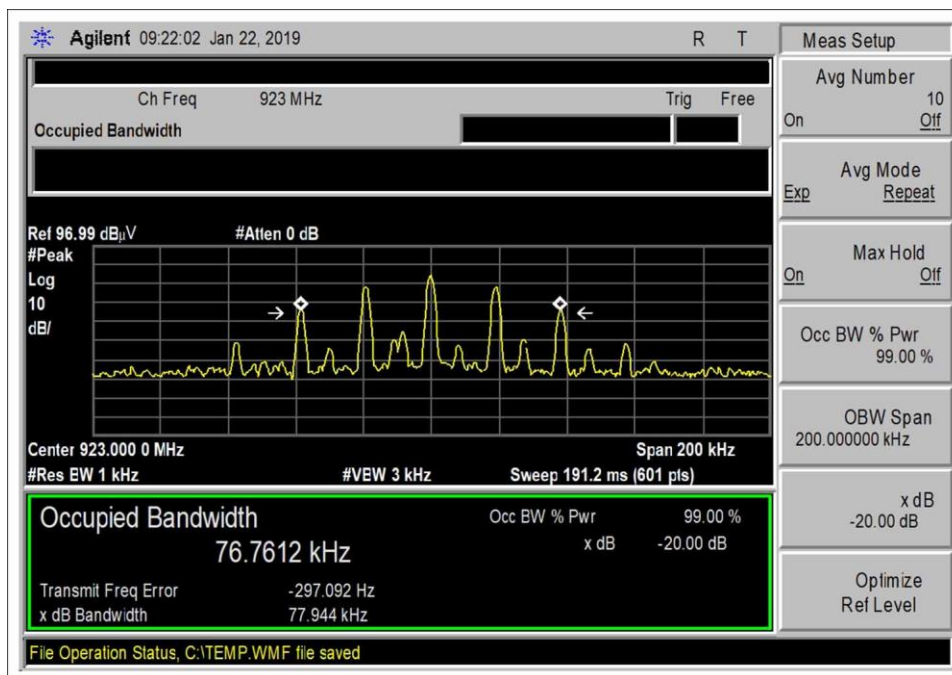
Plot(s)



Low Channel



Middle Channel

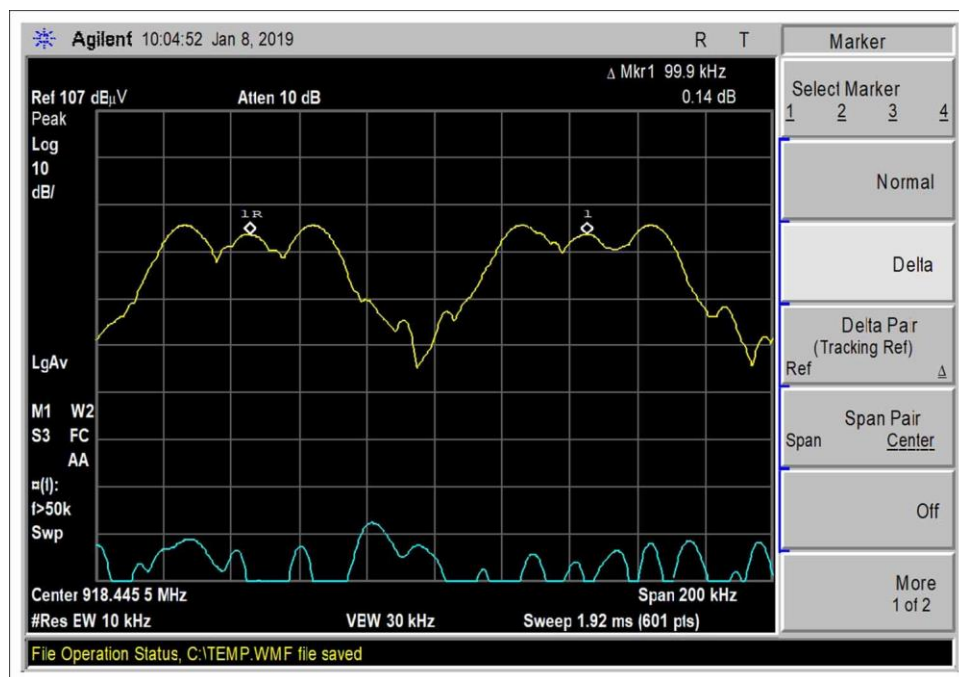


High Channel

15.247(a)(1) Carrier Separation

Test Data Summary				
Limit applied: 20dB bandwidth of the hopping channel.				
Antenna Port	Operational Mode	Measured (kHz)	Limit (kHz)	Results
1	Hopping	99.9	>77.962	Pass

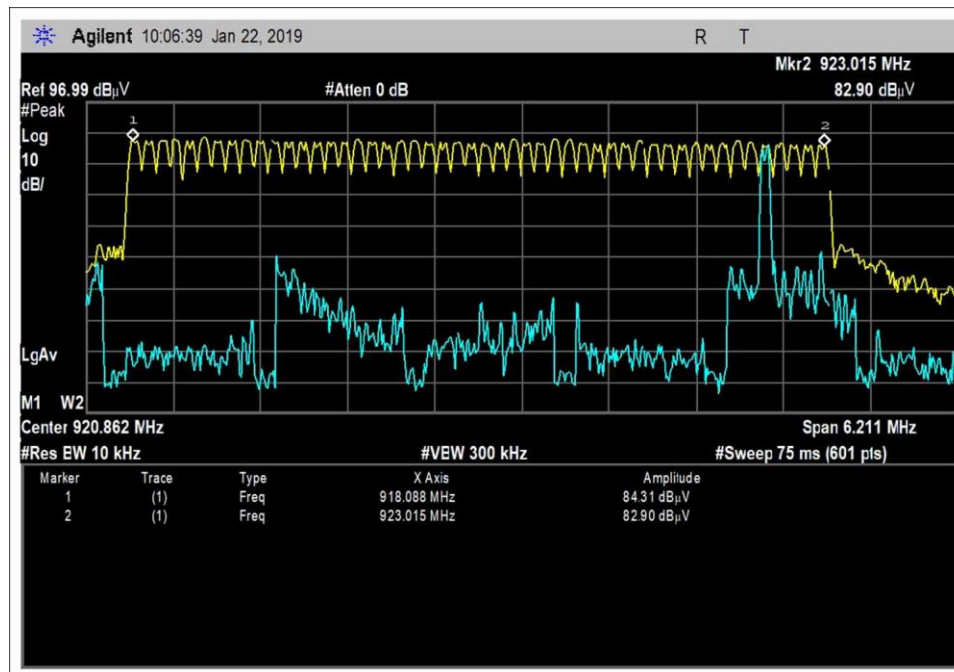
Plot(s)



15.247(a)(1)(iii) Number of Hopping Channels

Test Data Summary				
$Limit = \begin{cases} 50 \text{ Channels} & 20 \text{ dB BW} < 250 \text{ kHz} \\ 25 \text{ Channels} & 20 \text{ dB BW} \geq 250 \text{ kHz} \end{cases}$				
Antenna Port	Operational Mode	Measured (Channels)	Limit (Channels)	Results
1	Hopping	50	≥ 50	Pass

Plot(s)



15.247(a)(1)(iii) Time of Occupancy

Test Data Summary				
Observation Period, P_{obs} is derived from the following:				
$P_{obs} = \begin{cases} 20 \text{ Seconds} & 20 \text{ dB BW} < 250\text{kHz} \\ 10 \text{ Seconds} & 20 \text{ dB BW} \geq 250\text{kHz} \end{cases}$				
Antenna Port	Operational Mode	Measured (ms)	Limit (ms/ P_{obs})	Results
1	Hopping	121.8	≤ 400	Pass

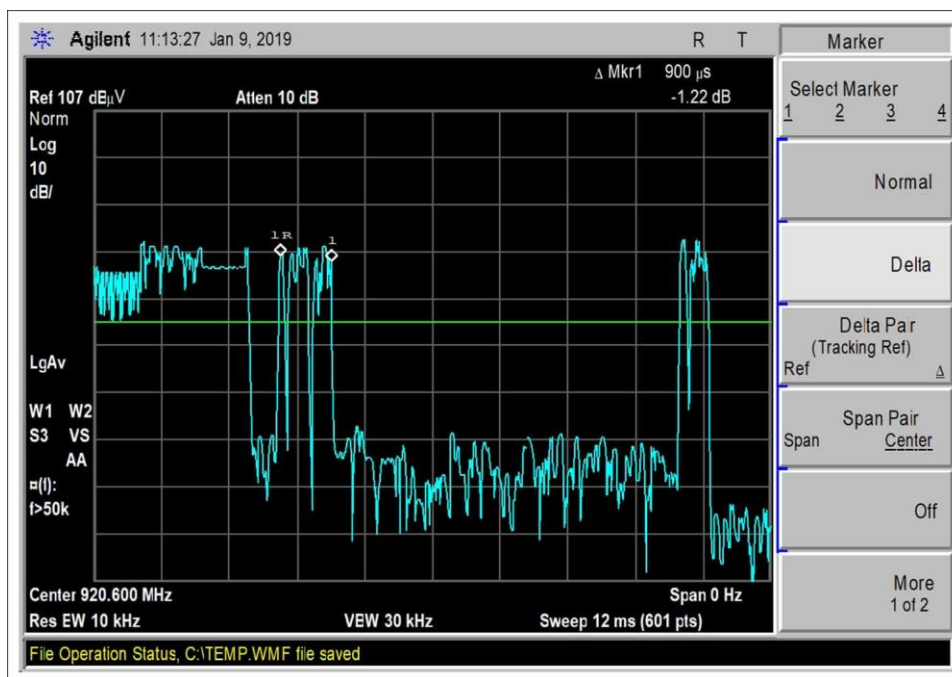
Measured results are calculated as follows:

$$Dwell\ time = \left(\sum_{Bursts} RF\ Burst\ On\ Time + \sum_{Control} Control\ Signal\ On\ time \right) \Big|_{P_{obs}}$$

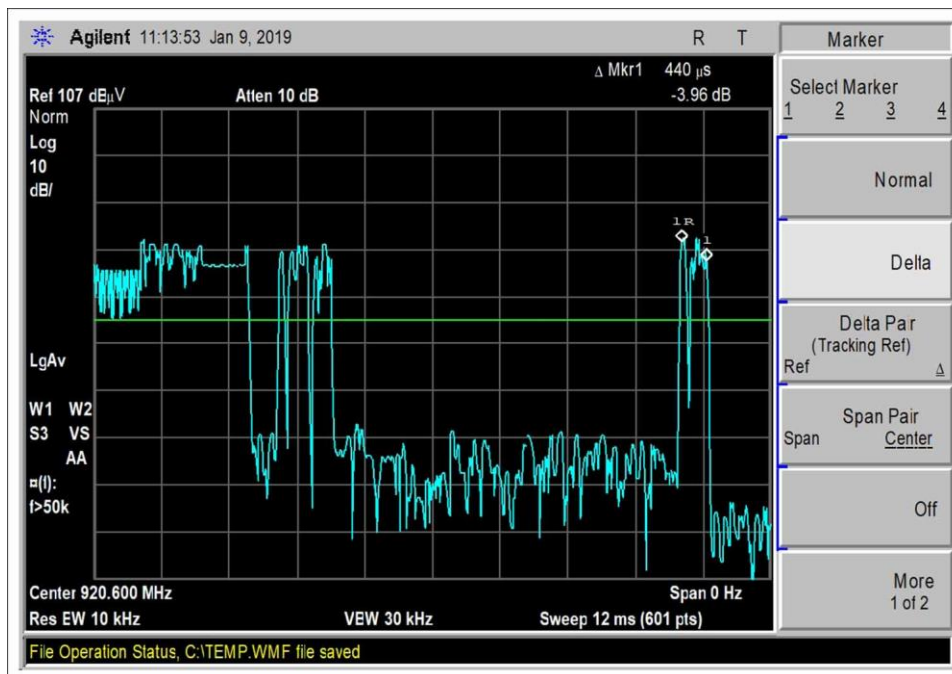
Actual Calculated Values:

Parameter	Value
Observation Period (P_{obs}):	20 seconds
Number of RF Bursts / P_{obs} :	30
On time of RF Burst:	2.72ms
Number of Control or other signals / P_{obs} :	2
On time of Control or other Signals:	0.9ms+0.44ms
Total Measured On Time:	4.06ms*30=121.8ms

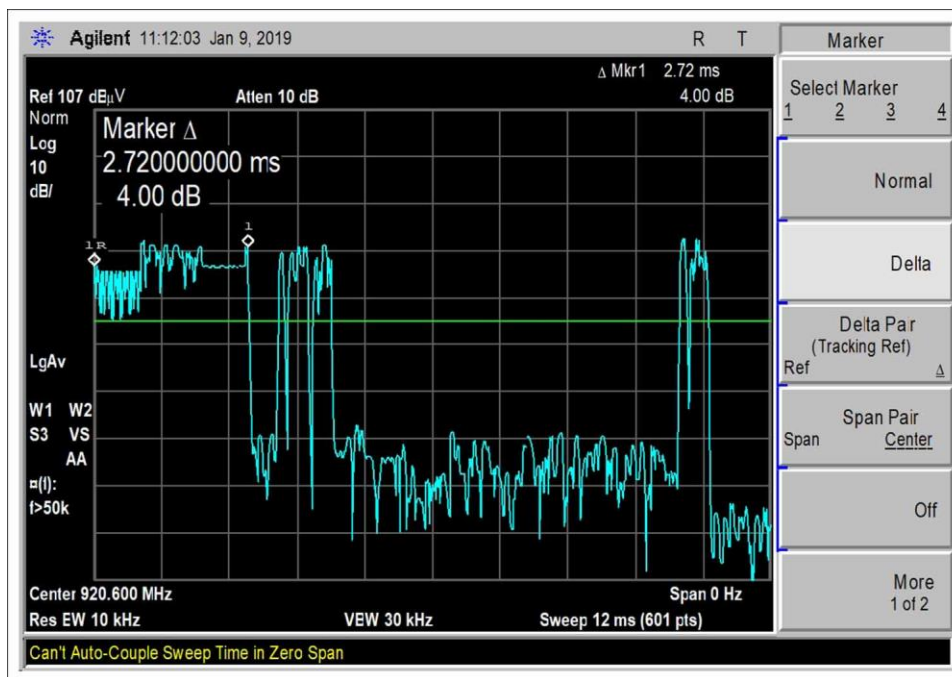
Plot(s)



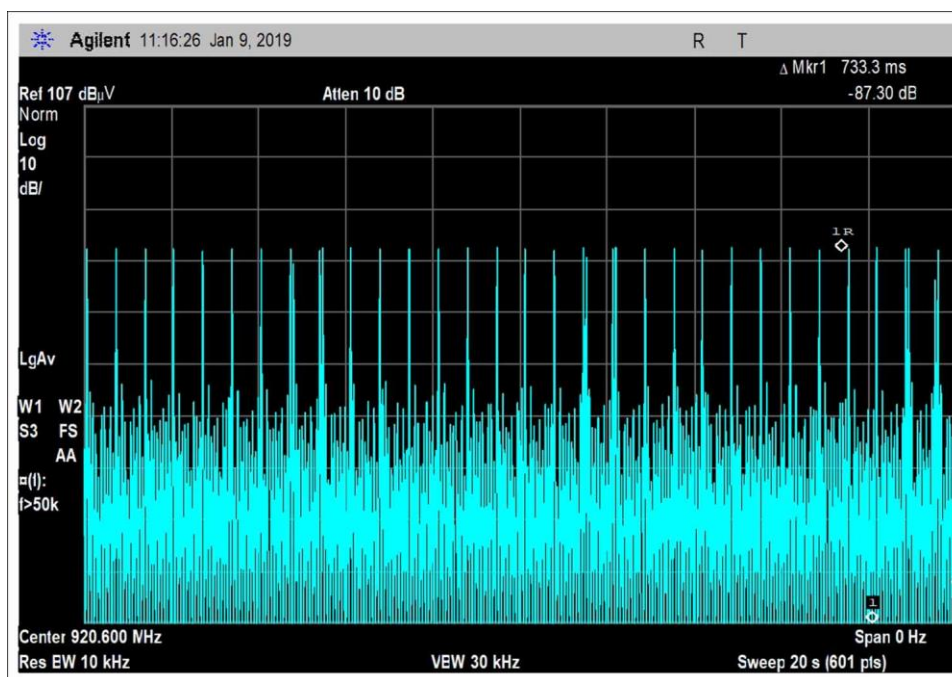
Control Signal



Control Signal



Burst Duration



Total Bursts

Test Setup Photo(s)



X Axis



Y Axis



Z Axis

15.247(b)(1) Output Power

Test Data Summary - Voltage Variations

This equipment is battery powered. Power output tests were performed using a fresh battery.

Test Data Summary - Radiated Measurement

Limit = $\begin{cases} 30\text{dBm Conducted}/36\text{dBm EIRP} & \geq 50 \text{ Channels} \\ 24\text{dBm Conducted}/30\text{dBm EIRP} & < 50 \text{ Channels (min 25)} \end{cases}$

Frequency (MHz)	Modulation	Ant. Type / Gain (dBi)	Field Strength (dBuV/m @3m)	Calculated (dBm)	Limit (dBm)	Results
918.1	GFSK	1.282	92.4	-4.2	≤ 30	Pass
920.6	GFSK	1.282	91.3	-5.3	≤ 30	Pass
923.0	GFSK	1.282	90.6	-6.0	≤ 30	Pass

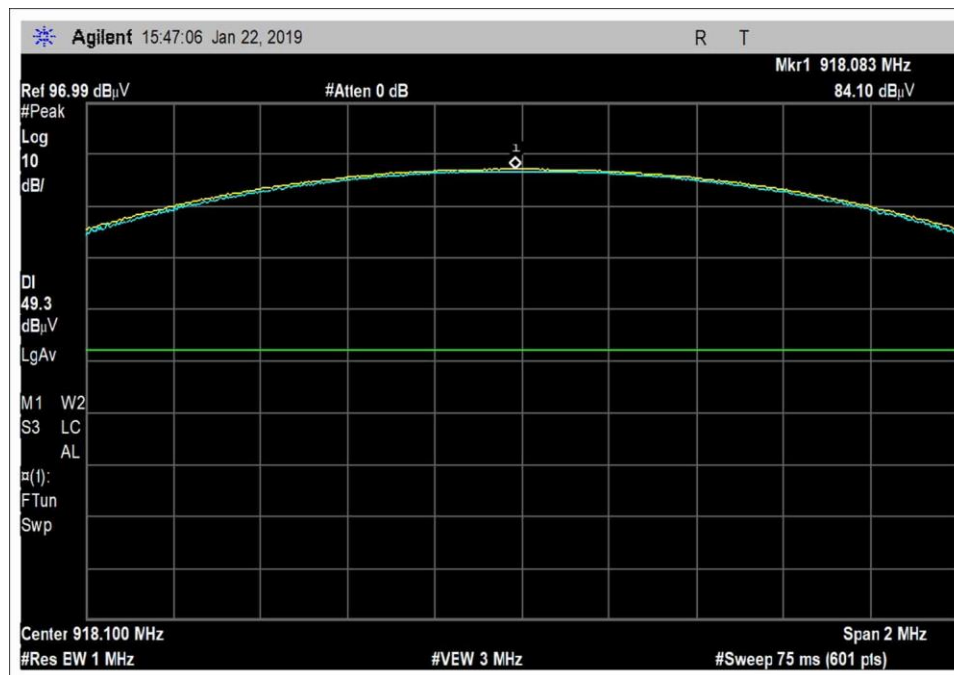
Conducted RF output power calculated in accordance with ANSI C63.10.

$$P(W) = \frac{(E \cdot d)^2}{30 G}$$

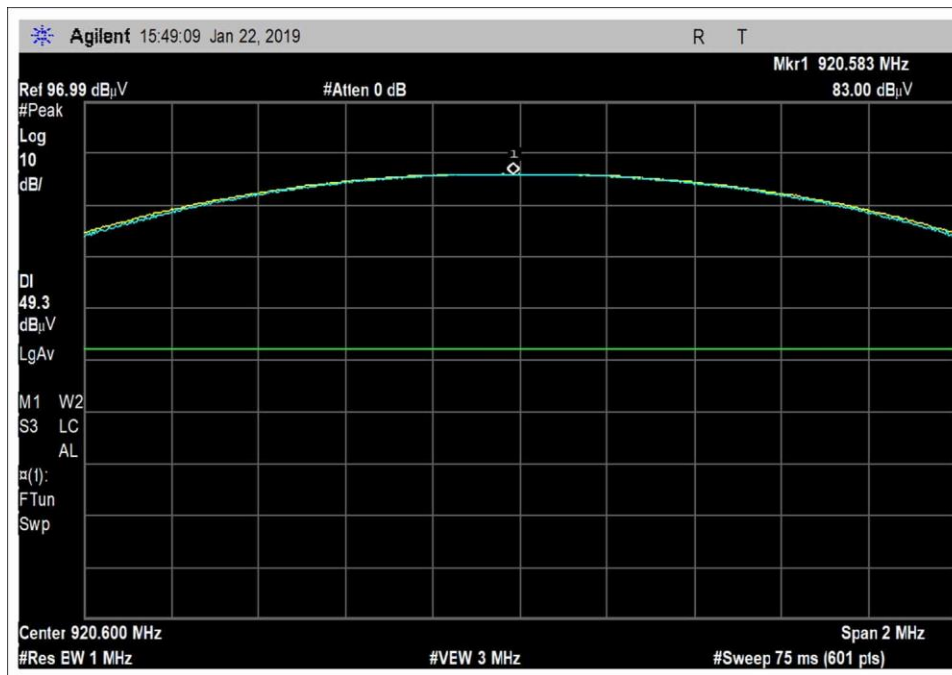
Or equivalently, in logarithmic form:

$$P(\text{dBm}) = E(\text{dBuV/m}) + 20\text{LOG}(d) - G - 104.77$$

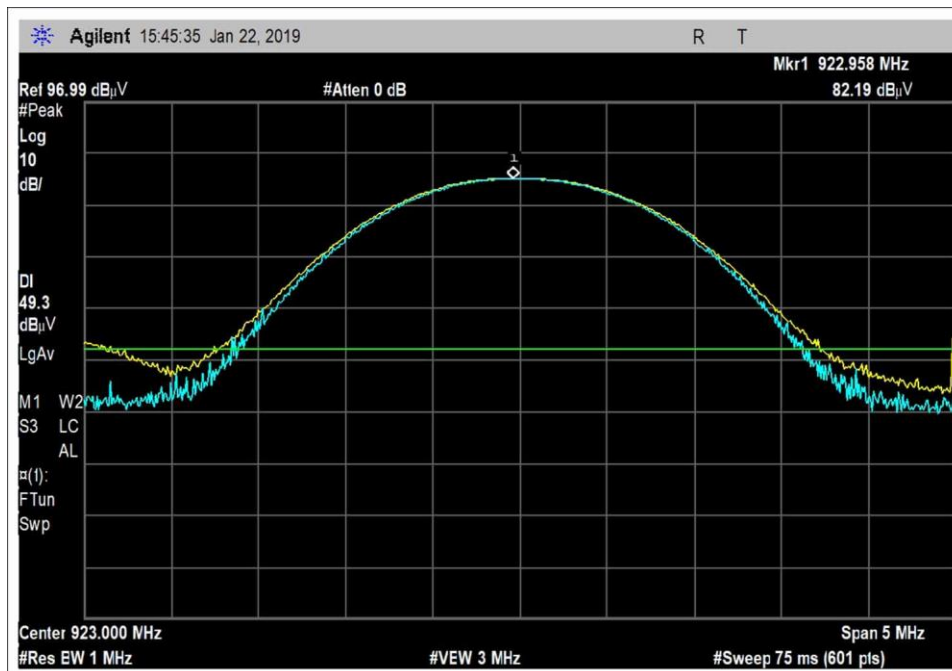
Plots



Low Channel



Middle Channel



High Channel

Test Setup / Conditions / Data

Test Location: CKC Laboratories Inc. • 110 N. Olinda Place • Brea, CA 92823 • 714-993-6112
 Customer: **Indyme Solutions, LLC**
 Specification: **15.247(d) / 15.209 Radiated Spurious Emissions**
 Work Order #: **101728** Date: 1/22/2019
 Test Type: **Maximized Emissions** Time: 15:41:28
 Tested By: E. Wong Sequence#: 0
 Software: EMITest 5.03.11

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

The equipment under test (EUT) is placed on Styrofoam platform and set to transmit continuously. The EUT is rotated in 3 axis.

 Operating frequency: 918.1MHz to 923MHz.
 Tested frequencies: 918.1MHz, 920.6MHz, 923MHz.

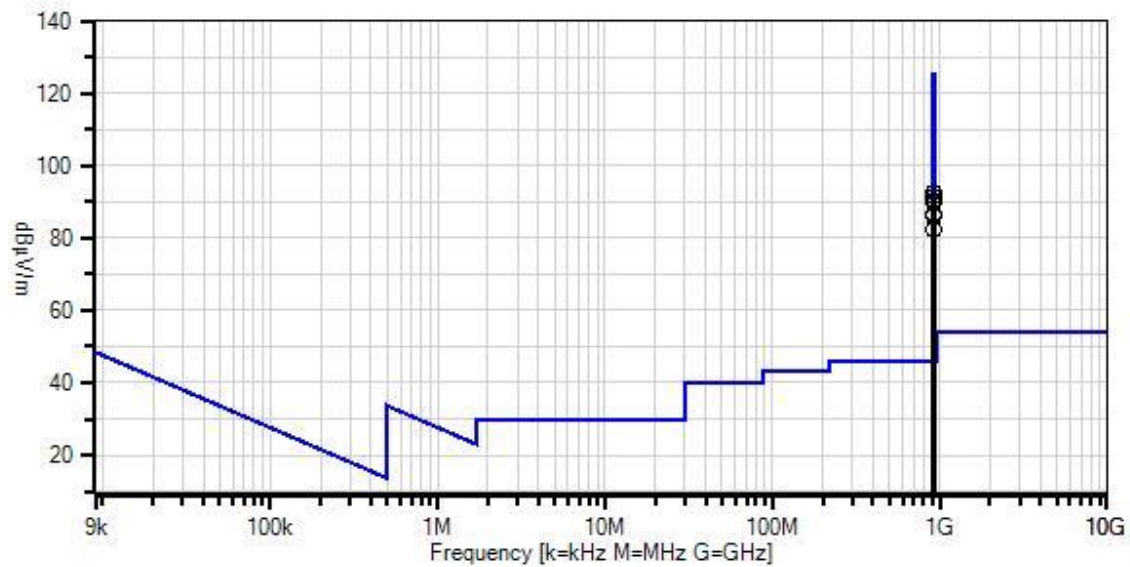
 Frequency range of data sheet 902-928MHz

 RBW=1MHz, VBW=3MHz

 Temperature: 17.9°C, Humidity: 55.1%, Pressure: 100kPa.
 Site A.
 Test Method: ANSI C63.4-2014 and ANSI C63.10-2013

 918MHz and 920.6MHz: Worse case orientation as determined from previous measurement.

Indyme Solutions, LLC WO#: 101728 Sequence#: 0 Date: 1/22/2019
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters Horiz



— Readings
 × QP Readings
 ▼ Ambient
 — 1 - 15.247(d) / 15.209 Radiated Spurious Emissions

○ Peak Readings
 * Average Readings
 Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00309	Preamp	8447D	2/19/2018	2/19/2020
T2	AN01995	Biconilog Antenna	CBL6111C	4/23/2018	4/23/2020
T3	ANP05275	Attenuator	1W	4/5/2018	4/5/2020
T4	ANP05198	Cable-Amplitude +15C to +45C (dB)	8268	12/4/2018	12/4/2020
T5	AN02869	Spectrum Analyzer	E4440A	8/10/2018	8/10/2019
T6	ANP05050	Cable	RG223/U	12/24/2018	12/24/2020

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dB μ V	dB	dB	dB	dB	Table	dB μ V/m	dB μ V/m	dB	Ant
1	918.100M	84.1	-27.2 +0.0	+23.1 +0.4	+6.1	+5.9	+0.0	92.4	125.2 X	-32.8	Horiz
2	920.558M	83.0	-27.2 +0.0	+23.1 +0.4	+6.1	+5.9	+0.0	91.3	125.2 X	-33.9	Horiz
3	923.000M	82.2	-27.2 +0.0	+23.2 +0.4	+6.1	+5.9	+0.0	90.6	125.2 X	-34.6	Horiz
4	923.000M	81.7	-27.2 +0.0	+23.2 +0.4	+6.1	+5.9	+0.0	90.1	125.2 Y	-35.1	Horiz
5	923.000M	81.6	-27.2 +0.0	+23.2 +0.4	+6.1	+5.9	+0.0	90.0	125.2 Z	-35.2	Vert
6	923.000M	78.1	-27.2 +0.0	+23.2 +0.4	+6.1	+5.9	+0.0	86.5	125.2 Z	-38.7	Horiz
7	923.000M	77.7	-27.2 +0.0	+23.2 +0.4	+6.1	+5.9	+0.0	86.1	125.2 Y	-39.1	Vert
8	923.000M	74.1	-27.2 +0.0	+23.2 +0.4	+6.1	+5.9	+0.0	82.5	125.2 X	-42.7	Vert

Test Setup Photo(s)



X Axis



Y Axis



Z Axis

15.247(d) Radiated Emissions & Band Edge

Test Setup / Conditions / Data

Test Location: CKC Laboratories Inc. • 110 N. Olinda Place • Brea, CA 92823 • 714-993-6112
 Customer: **Indyme Solutions, LLC**
 Specification: **15.247(d) / 15.209 Radiated Spurious Emissions**
 Work Order #: **101728** Date: 1/23/2019
 Test Type: **Maximized Emissions** Time: 16:23:12
 Tested By: E. Wong Sequence#: 3
 Software: EMITest 5.03.11

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

The equipment under test (EUT) is placed on Styrofoam platform and set to transmit continuously. The EUT is rotated in 3 axis.

Operating frequency: 918.1MHz to 923MHz.

Tested frequencies: 918.1MHz, 920.6MHz, 923MHz.

Frequency range of measurement = 9 kHz- 10GHz.

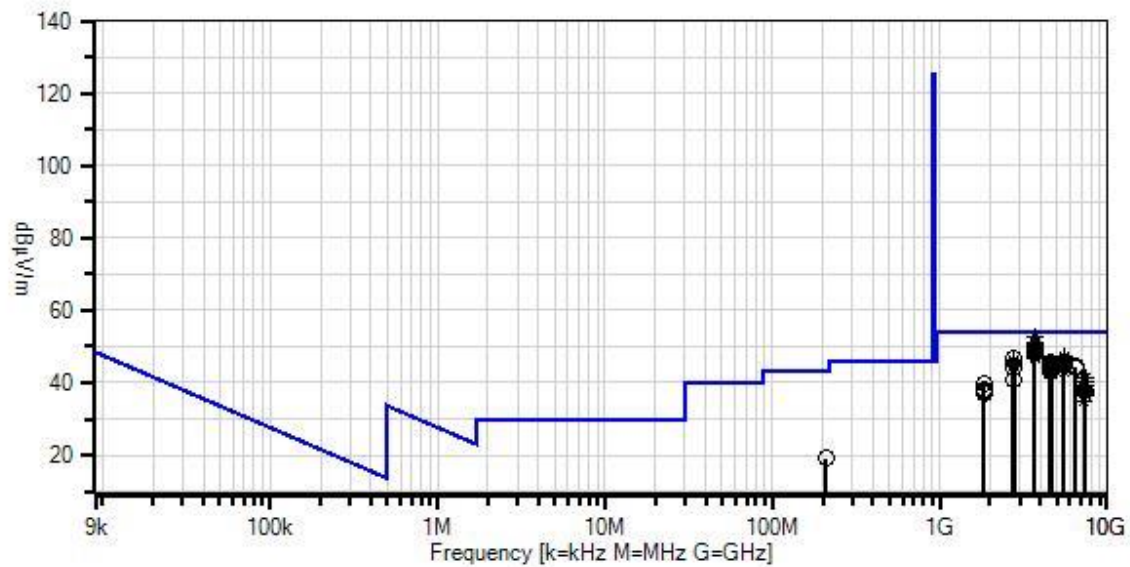
9 kH -150 kHz;RBW=200 Hz,VBW=200 Hz;150 kHz-30 MHz;RBW=9 kHz,VBW=9 kHz;30 MHz-1000 MHz;RBW=120 kHz,VBW=120 kHz,1000 MHz-10000 MHz;RBW=1 MHz,VBW=1 MHz.

Temperature: 20.7°C, Humidity: 24.1%

Site A.

Test Method: ANSI C63.10 (2013)

Indyme Solutions, LLC WO#: 101728 Sequence#: 3 Date: 1/23/2019
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters Horiz



— Readings
× QP Readings
▼ Ambient
— 1 - 15.247(d) / 15.209 Radiated Spurious Emissions

○ Peak Readings
* Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02869	Spectrum Analyzer	E4440A	8/10/2018	8/10/2019
T2	AN01995	Biconilog Antenna	CBL6111C	4/23/2018	4/23/2020
T3	ANP05275	Attenuator	1W	4/5/2018	4/5/2020
T4	ANP05198	Cable-Amplitude +15C to +45C (dB)	8268	12/4/2018	12/4/2020
T5	AN00309	Preamp	8447D	2/19/2018	2/19/2020
T6	ANP05050	Cable	RG223/U	12/24/2018	12/24/2020
	AN00314	Loop Antenna	6502	5/13/2018	5/13/2020
T7	AN00849	Horn Antenna	3115	3/14/2018	3/14/2020
T8	ANP07246	Cable	32022-29094K- 29094K-24TC	7/5/2018	7/5/2020
T9	AN00786	Preamp	83017A	5/12/2018	5/12/2020
T10	ANP07139	Cable	ANDL1- PNMNM-48	3/1/2017	3/1/2019
T11	AN03169	High Pass Filter	HM1155-11SS	6/15/2017	6/15/2019

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq	Rdng	T1 T5 T9	T2 T6 T10	T3 T7 T11	T4 T8	Dist	Corr	Spec	Margin	Polar
	MHz	dBμV	dB	dB	dB	dB	Table	dBμV/m	dBμV/m	dB	Ant
1	3682.400M Ave	55.0	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.7 +0.2	+0.0 +0.4	+0.0	52.8	54.0	-1.2	Horiz
2	3682.400M Ave	53.4	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.7 +0.2	+0.0 +0.4	+0.0	51.2	54.0 M_Y	-2.8	Horiz
3	3692.000M Ave	52.5	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.8 +0.2	+0.0 +0.4	+0.0	50.4	54.0 H_Y	-3.6	Horiz
4	3672.367M Ave	52.4	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.6 +0.2	+0.0 +0.4	+0.0	50.1	54.0 L_Y	-3.9	Horiz
5	3672.333M Ave	52.3	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.6 +0.2	+0.0 +0.4	+0.0	50.0	54.0 L_Z	-4.0	Vert
6	3672.467M Ave	52.2	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.6 +0.2	+0.0 +0.4	+0.0	49.9	54.0 L_Z	-4.1	Horiz
7	3672.267M Ave	52.0	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.6 +0.2	+0.0 +0.4	+0.0	49.7	54.0 L_Y	-4.3	Vert
8	3682.333M Ave	51.3	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.7 +0.2	+0.0 +0.4	+0.0	49.1	54.0 M_Y	-4.9	Vert
9	3691.917M Ave	50.8	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.8 +0.2	+0.0 +0.4	+0.0	48.7	54.0 H_Z	-5.3	Horiz

10	3692.000M Ave	50.5	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.8 +0.2	+0.0 +0.4	+0.0	48.4	54.0 H_Y	-5.6	Vert
11	3682.400M Ave	50.0	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.7 +0.2	+0.0 +0.4	+0.0	47.8	54.0 M_X	-6.2	Vert
12	3672.267M Ave	49.9	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.6 +0.2	+0.0 +0.4	+0.0	47.6	54.0 L_X	-6.4	Vert
^	3672.267M	54.9	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.6 +0.2	+0.0 +0.4	+0.0	52.6	54.0 L_Y	-1.4	Vert
^	3672.333M	54.8	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.6 +0.2	+0.0 +0.4	+0.0	52.5	54.0 L_Z	-1.5	Vert
^	3672.267M	54.1	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.6 +0.2	+0.0 +0.4	+0.0	51.8	54.0 L_X	-2.2	Vert
16	3682.400M Ave	49.7	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.7 +0.2	+0.0 +0.4	+0.0	47.5	54.0 M_Z	-6.5	Vert
^	3682.333M	54.5	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.7 +0.2	+0.0 +0.4	+0.0	52.3	54.0 M_Y	-1.7	Vert
^	3682.400M	52.9	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.7 +0.2	+0.0 +0.4	+0.0	50.7	54.0 M_Z	-3.3	Vert
^	3682.400M	52.7	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.7 +0.2	+0.0 +0.4	+0.0	50.5	54.0 M_X	-3.5	Vert
20	5537.950M Ave	45.9	+0.0 +0.0 -37.4	+0.0 +0.0 +4.6	+0.0 +34.0 +0.1	+0.0 +0.2	+0.0	47.4	54.0 H_Z	-6.6	Vert
21	3672.450M Ave	49.7	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.6 +0.2	+0.0 +0.4	+0.0	47.4	54.0 L_X	-6.6	Horiz
^	3672.367M	54.8	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.6 +0.2	+0.0 +0.4	+0.0	52.5	54.0 L_Y	-1.5	Horiz
^	3672.467M	54.8	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.6 +0.2	+0.0 +0.4	+0.0	52.5	54.0 L_Z	-1.5	Horiz
^	3672.450M	53.3	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.6 +0.2	+0.0 +0.4	+0.0	51.0	54.0 L_X	-3.0	Horiz

25	5508.567M Ave	45.8	+0.0 +0.0 -37.5	+0.0 +0.0 +4.6	+0.0 +34.1 +0.1	+0.0 +0.2	+0.0	47.3	54.0 L_Z	-6.7	Vert
26	3692.000M Ave	49.2	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.8 +0.2	+0.0 +0.4	+0.0	47.1	54.0 H_X	-6.9	Horiz
^	3692.000M	55.0	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.8 +0.2	+0.0 +0.4	+0.0	52.9	54.0 H_Y	-1.1	Horiz
^	3691.917M	53.6	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.8 +0.2	+0.0 +0.4	+0.0	51.5	54.0 H_Z	-2.5	Horiz
^	3692.000M	52.2	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.8 +0.2	+0.0 +0.4	+0.0	50.1	54.0 H_X	-3.9	Horiz
30	3682.400M Ave	48.9	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.7 +0.2	+0.0 +0.4	+0.0	46.7	54.0 M_Z	-7.3	Horiz
31	3692.000M Ave	48.8	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.8 +0.2	+0.0 +0.4	+0.0	46.7	54.0 H_Z	-7.3	Vert
32	5523.600M Ave	45.1	+0.0 +0.0 -37.4	+0.0 +0.0 +4.6	+0.0 +34.1 +0.1	+0.0 +0.2	+0.0	46.7	54.0 M_Z	-7.3	Vert
33	2754.130M	52.0	+0.0 +0.0 -38.6	+0.0 +0.0 +3.3	+0.0 +29.4 +0.2	+0.0 +0.3	+0.0	46.6	54.0 L_Z	-7.4	Horiz
34	3682.400M Ave	48.8	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.7 +0.2	+0.0 +0.4	+0.0	46.6	54.0 M_X	-7.4	Horiz
^	3682.400M	56.9	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.7 +0.2	+0.0 +0.4	+0.0	54.7	54.0	+0.7	Horiz
^	3682.400M	55.5	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.7 +0.2	+0.0 +0.4	+0.0	53.3	54.0 M_Y	-0.7	Horiz
^	3682.400M	52.3	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.7 +0.2	+0.0 +0.4	+0.0	50.1	54.0 M_X	-3.9	Horiz
^	3682.400M	51.8	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.7 +0.2	+0.0 +0.4	+0.0	49.6	54.0 M_Z	-4.4	Horiz

39	3692.000M Ave	48.7	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.8 +0.2	+0.0 +0.4	+0.0	46.6	54.0 H_X	-7.4	Vert
^	3692.000M	53.4	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.8 +0.2	+0.0 +0.4	+0.0	51.3	54.0 H_Y	-2.7	Vert
^	3692.000M	52.1	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.8 +0.2	+0.0 +0.4	+0.0	50.0	54.0 H_X	-4.0	Vert
^	3692.000M	51.8	+0.0 +0.0 -38.3	+0.0 +0.0 +3.8	+0.0 +31.8 +0.2	+0.0 +0.4	+0.0	49.7	54.0 H_Z	-4.3	Vert
43	2769.000M Ave	51.5	+0.0 +0.0 -38.6	+0.0 +0.0 +3.3	+0.0 +29.5 +0.2	+0.0 +0.3	+0.0	46.2	54.0 H_X	-7.8	Horiz
^	2769.000M	54.1	+0.0 +0.0 -38.6	+0.0 +0.0 +3.3	+0.0 +29.5 +0.2	+0.0 +0.3	+0.0	48.8	54.0 H_X	-5.2	Horiz
^	2768.917M	50.9	+0.0 +0.0 -38.6	+0.0 +0.0 +3.3	+0.0 +29.5 +0.2	+0.0 +0.3	+0.0	45.6	54.0 H_Z	-8.4	Horiz
^	2769.000M	49.8	+0.0 +0.0 -38.6	+0.0 +0.0 +3.3	+0.0 +29.5 +0.2	+0.0 +0.3	+0.0	44.5	54.0 H_Y	-9.5	Horiz
47	2754.333M Ave	51.5	+0.0 +0.0 -38.6	+0.0 +0.0 +3.3	+0.0 +29.4 +0.2	+0.0 +0.3	+0.0	46.1	54.0 L_X	-7.9	Horiz
^	2754.333M	54.1	+0.0 +0.0 -38.6	+0.0 +0.0 +3.3	+0.0 +29.4 +0.2	+0.0 +0.3	+0.0	48.7	54.0 L_X	-5.3	Horiz
^	2754.300M	49.1	+0.0 +0.0 -38.6	+0.0 +0.0 +3.3	+0.0 +29.4 +0.2	+0.0 +0.3	+0.0	43.7	54.0 L_Y	-10.3	Horiz
50	5508.667M Ave	44.5	+0.0 +0.0 -37.5	+0.0 +0.0 +4.6	+0.0 +34.1 +0.1	+0.0 +0.2	+0.0	46.0	54.0 L_X	-8.0	Vert
^	5508.667M	49.9	+0.0 +0.0 -37.5	+0.0 +0.0 +4.6	+0.0 +34.1 +0.1	+0.0 +0.2	+0.0	51.4	54.0 L_X	-2.6	Vert
52	2761.850M Ave	51.1	+0.0 +0.0 -38.6	+0.0 +0.0 +3.3	+0.0 +29.4 +0.2	+0.0 +0.3	+0.0	45.7	54.0 M_X	-8.3	Horiz
^	2761.850M	54.1	+0.0 +0.0 -38.6	+0.0 +0.0 +3.3	+0.0 +29.4 +0.2	+0.0 +0.3	+0.0	48.7	54.0 M_X	-5.3	Horiz
^	2761.800M	51.3	+0.0 +0.0 -38.6	+0.0 +0.0 +3.3	+0.0 +29.4 +0.2	+0.0 +0.3	+0.0	45.9	54.0 M_Z	-8.1	Horiz
^	2761.917M	49.9	+0.0 +0.0 -38.6	+0.0 +0.0 +3.3	+0.0 +29.4 +0.2	+0.0 +0.3	+0.0	44.5	54.0 M_Y	-9.5	Horiz

56	4590.483M	45.5	+0.0 +0.0 -37.7	+0.0 +0.0 +4.1	+0.0 +33.0 +0.1	+0.0 +0.5	+0.0	45.5	54.0 L_X	-8.5	Vert
57	5538.000M Ave	44.0	+0.0 +0.0 -37.4	+0.0 +0.0 +4.6	+0.0 +34.0 +0.1	+0.0 +0.2	+0.0	45.5	54.0 H_X	-8.5	Vert
58	4590.533M	45.5	+0.0 +0.0 -37.7	+0.0 +0.0 +4.1	+0.0 +33.0 +0.1	+0.0 +0.5	+0.0	45.5	54.0 L_Y	-8.5	Vert
59	5523.600M Ave	43.9	+0.0 +0.0 -37.4	+0.0 +0.0 +4.6	+0.0 +34.1 +0.1	+0.0 +0.2	+0.0	45.5	54.0 M_Y	-8.5	Horiz
60	4590.530M	45.3	+0.0 +0.0 -37.7	+0.0 +0.0 +4.1	+0.0 +33.0 +0.1	+0.0 +0.5	+0.0	45.3	54.0 L_Z	-8.7	Horiz
61	5508.600M Ave	43.7	+0.0 +0.0 -37.5	+0.0 +0.0 +4.6	+0.0 +34.1 +0.1	+0.0 +0.2	+0.0	45.2	54.0 L_Z	-8.8	Horiz
62	5523.600M Ave	43.6	+0.0 +0.0 -37.4	+0.0 +0.0 +4.6	+0.0 +34.1 +0.1	+0.0 +0.2	+0.0	45.2	54.0 M_Z	-8.8	Horiz
63	2769.000M Ave	50.4	+0.0 +0.0 -38.6	+0.0 +0.0 +3.3	+0.0 +29.5 +0.2	+0.0 +0.3	+0.0	45.1	54.0 H_Y	-8.9	Vert
^	2769.000M	53.5	+0.0 +0.0 -38.6	+0.0 +0.0 +3.3	+0.0 +29.5 +0.2	+0.0 +0.3	+0.0	48.2	54.0 H_Y	-5.8	Vert
^	2769.000M	49.4	+0.0 +0.0 -38.6	+0.0 +0.0 +3.3	+0.0 +29.5 +0.2	+0.0 +0.3	+0.0	44.1	54.0 H_Z	-9.9	Vert
^	2769.000M	46.9	+0.0 +0.0 -38.6	+0.0 +0.0 +3.3	+0.0 +29.5 +0.2	+0.0 +0.3	+0.0	41.6	54.0 H_X	-12.4	Vert
67	5508.617M Ave	43.5	+0.0 +0.0 -37.5	+0.0 +0.0 +4.6	+0.0 +34.1 +0.1	+0.0 +0.2	+0.0	45.0	54.0 L_X	-9.0	Horiz
68	4615.000M	45.1	+0.0 +0.0 -37.7	+0.0 +0.0 +4.1	+0.0 +32.9 +0.1	+0.0 +0.5	+0.0	45.0	54.0 H_X	-9.0	Vert
69	4614.917M	45.0	+0.0 +0.0 -37.7	+0.0 +0.0 +4.1	+0.0 +32.9 +0.1	+0.0 +0.5	+0.0	44.9	54.0 H_Z	-9.1	Horiz
70	2754.350M Ave	50.2	+0.0 +0.0 -38.6	+0.0 +0.0 +3.3	+0.0 +29.4 +0.2	+0.0 +0.3	+0.0	44.8	54.0 L_Y	-9.2	Vert
^	2754.300M	53.4	+0.0 +0.0 -38.6	+0.0 +0.0 +3.3	+0.0 +29.4 +0.2	+0.0 +0.3	+0.0	48.0	54.0 L_Y	-6.0	Vert
72	4603.000M	44.6	+0.0 +0.0 -37.7	+0.0 +0.0 +4.1	+0.0 +33.0 +0.1	+0.0 +0.5	+0.0	44.6	54.0 M_Y	-9.4	Horiz

73	5508.500M Ave	43.1	+0.0 +0.0 -37.5	+0.0 +0.0 +4.6	+0.0 +34.1 +0.1	+0.0 +0.2	+0.0	44.6	54.0 L_Y	-9.4	Vert
^	5508.567M	49.5	+0.0 +0.0 -37.5	+0.0 +0.0 +4.6	+0.0 +34.1 +0.1	+0.0 +0.2	+0.0	51.0	54.0 L_Z	-3.0	Vert
^	5508.500M	48.9	+0.0 +0.0 -37.5	+0.0 +0.0 +4.6	+0.0 +34.1 +0.1	+0.0 +0.2	+0.0	50.4	54.0 L_Y	-3.6	Vert
76	2761.733M Ave	49.9	+0.0 +0.0 -38.6	+0.0 +0.0 +3.3	+0.0 +29.4 +0.2	+0.0 +0.3	+0.0	44.5	54.0 M_Y	-9.5	Vert
^	2761.733M	53.4	+0.0 +0.0 -38.6	+0.0 +0.0 +3.3	+0.0 +29.4 +0.2	+0.0 +0.3	+0.0	48.0	54.0 M_Y	-6.0	Vert
^	2761.800M	48.8	+0.0 +0.0 -38.6	+0.0 +0.0 +3.3	+0.0 +29.4 +0.2	+0.0 +0.3	+0.0	43.4	54.0 M_Z	-10.6	Vert
^	2761.800M	48.0	+0.0 +0.0 -38.6	+0.0 +0.0 +3.3	+0.0 +29.4 +0.2	+0.0 +0.3	+0.0	42.6	54.0 M_X	-11.4	Vert
80	5523.600M Ave	42.9	+0.0 +0.0 -37.4	+0.0 +0.0 +4.6	+0.0 +34.1 +0.1	+0.0 +0.2	+0.0	44.5	54.0 M_X	-9.5	Vert
^	5523.600M	49.4	+0.0 +0.0 -37.4	+0.0 +0.0 +4.6	+0.0 +34.1 +0.1	+0.0 +0.2	+0.0	51.0	54.0 M_Z	-3.0	Vert
^	5523.600M	48.0	+0.0 +0.0 -37.4	+0.0 +0.0 +4.6	+0.0 +34.1 +0.1	+0.0 +0.2	+0.0	49.6	54.0 M_X	-4.4	Vert
83	6426.733M	42.6	+0.0 +0.0 -37.4	+0.0 +0.0 +5.0	+0.0 +34.0 +0.2	+0.0 +0.1	+0.0	44.5	54.0 L_X	-9.5	Vert
84	4603.000M	44.4	+0.0 +0.0 -37.7	+0.0 +0.0 +4.1	+0.0 +33.0 +0.1	+0.0 +0.5	+0.0	44.4	54.0 M_Z	-9.6	Horiz
85	5537.917M Ave	42.9	+0.0 +0.0 -37.4	+0.0 +0.0 +4.6	+0.0 +34.0 +0.1	+0.0 +0.2	+0.0	44.4	54.0 H_Z	-9.6	Horiz
86	4590.500M	44.4	+0.0 +0.0 -37.7	+0.0 +0.0 +4.1	+0.0 +33.0 +0.1	+0.0 +0.5	+0.0	44.4	54.0 L_Y	-9.6	Horiz
87	5523.450M Ave	42.7	+0.0 +0.0 -37.4	+0.0 +0.0 +4.6	+0.0 +34.1 +0.1	+0.0 +0.2	+0.0	44.3	54.0 M_Y	-9.7	Vert
^	5523.450M	47.3	+0.0 +0.0 -37.4	+0.0 +0.0 +4.6	+0.0 +34.1 +0.1	+0.0 +0.2	+0.0	48.9	54.0 M_Y	-5.1	Vert
89	4603.000M	44.3	+0.0 +0.0 -37.7	+0.0 +0.0 +4.1	+0.0 +33.0 +0.1	+0.0 +0.5	+0.0	44.3	54.0 M_X	-9.7	Vert

90	5538.000M Ave	42.5	+0.0 +0.0 -37.4	+0.0 +0.0 +4.6	+0.0 +34.0 +0.1	+0.0 +0.2	+0.0	44.0	54.0 H_Y	-10.0	Horiz
91	5508.650M Ave	42.5	+0.0 +0.0 -37.5	+0.0 +0.0 +4.6	+0.0 +34.1 +0.1	+0.0 +0.2	+0.0	44.0	54.0 L_Y	-10.0	Horiz
^	5508.617M	49.2	+0.0 +0.0 -37.5	+0.0 +0.0 +4.6	+0.0 +34.1 +0.1	+0.0 +0.2	+0.0	50.7	54.0 L_X	-3.3	Horiz
^	5508.600M	48.0	+0.0 +0.0 -37.5	+0.0 +0.0 +4.6	+0.0 +34.1 +0.1	+0.0 +0.2	+0.0	49.5	54.0 L_Z	-4.5	Horiz
^	5508.650M	47.3	+0.0 +0.0 -37.5	+0.0 +0.0 +4.6	+0.0 +34.1 +0.1	+0.0 +0.2	+0.0	48.8	54.0 L_Y	-5.2	Horiz
95	2754.150M	49.4	+0.0 +0.0 -38.6	+0.0 +0.0 +3.3	+0.0 +29.4 +0.2	+0.0 +0.3	+0.0	44.0	54.0 L_Z	-10.0	Vert
96	4602.933M	43.8	+0.0 +0.0 -37.7	+0.0 +0.0 +4.1	+0.0 +33.0 +0.1	+0.0 +0.5	+0.0	43.8	54.0 M_Y	-10.2	Vert
97	5538.000M Ave	42.3	+0.0 +0.0 -37.4	+0.0 +0.0 +4.6	+0.0 +34.0 +0.1	+0.0 +0.2	+0.0	43.8	54.0 H_Y	-10.2	Vert
^	5537.950M	50.3	+0.0 +0.0 -37.4	+0.0 +0.0 +4.6	+0.0 +34.0 +0.1	+0.0 +0.2	+0.0	51.8	54.0 H_Z	-2.2	Vert
^	5538.000M	48.1	+0.0 +0.0 -37.4	+0.0 +0.0 +4.6	+0.0 +34.0 +0.1	+0.0 +0.2	+0.0	49.6	54.0 H_X	-4.4	Vert
^	5538.000M	47.6	+0.0 +0.0 -37.4	+0.0 +0.0 +4.6	+0.0 +34.0 +0.1	+0.0 +0.2	+0.0	49.1	54.0 H_Y	-4.9	Vert
101	6444.200M	41.8	+0.0 +0.0 -37.4	+0.0 +0.0 +5.1	+0.0 +34.0 +0.2	+0.0 +0.1	+0.0	43.8	54.0 M_X	-10.2	Vert
102	5523.600M Ave	42.2	+0.0 +0.0 -37.4	+0.0 +0.0 +4.6	+0.0 +34.1 +0.1	+0.0 +0.2	+0.0	43.8	54.0 M_X	-10.2	Horiz
^	5523.600M	47.9	+0.0 +0.0 -37.4	+0.0 +0.0 +4.6	+0.0 +34.1 +0.1	+0.0 +0.2	+0.0	49.5	54.0 M_Y	-4.5	Horiz
^	5523.600M	47.9	+0.0 +0.0 -37.4	+0.0 +0.0 +4.6	+0.0 +34.1 +0.1	+0.0 +0.2	+0.0	49.5	54.0 M_Z	-4.5	Horiz
^	5523.600M	47.4	+0.0 +0.0 -37.4	+0.0 +0.0 +4.6	+0.0 +34.1 +0.1	+0.0 +0.2	+0.0	49.0	54.0 M_X	-5.0	Horiz
106	4603.000M	43.7	+0.0 +0.0 -37.7	+0.0 +0.0 +4.1	+0.0 +33.0 +0.1	+0.0 +0.5	+0.0	43.7	54.0 M_X	-10.3	Horiz

107	4615.000M	43.7	+0.0 +0.0 -37.7	+0.0 +0.0 +4.1	+0.0 +32.9 +0.1	+0.0 +0.5	+0.0	43.6	54.0 H_Y	-10.4	Horiz
108	4603.000M	43.4	+0.0 +0.0 -37.7	+0.0 +0.0 +4.1	+0.0 +33.0 +0.1	+0.0 +0.5	+0.0	43.4	54.0 M_Z	-10.6	Vert
109	4590.400M	43.4	+0.0 +0.0 -37.7	+0.0 +0.0 +4.1	+0.0 +33.0 +0.1	+0.0 +0.5	+0.0	43.4	54.0 L_Z	-10.6	Vert
110	4590.600M	43.0	+0.0 +0.0 -37.7	+0.0 +0.0 +4.1	+0.0 +33.0 +0.1	+0.0 +0.5	+0.0	43.0	54.0 L_X	-11.0	Horiz
111	5538.000M Ave	41.4	+0.0 +0.0 -37.4	+0.0 +0.0 +4.6	+0.0 +34.0 +0.1	+0.0 +0.2	+0.0	42.9	54.0 H_X	-11.1	Horiz
^	5537.917M	48.1	+0.0 +0.0 -37.4	+0.0 +0.0 +4.6	+0.0 +34.0 +0.1	+0.0 +0.2	+0.0	49.6	54.0 H_Z	-4.4	Horiz
^	5538.000M	47.6	+0.0 +0.0 -37.4	+0.0 +0.0 +4.6	+0.0 +34.0 +0.1	+0.0 +0.2	+0.0	49.1	54.0 H_Y	-4.9	Horiz
^	5538.000M	47.4	+0.0 +0.0 -37.4	+0.0 +0.0 +4.6	+0.0 +34.0 +0.1	+0.0 +0.2	+0.0	48.9	54.0 H_X	-5.1	Horiz
115	4615.000M	42.9	+0.0 +0.0 -37.7	+0.0 +0.0 +4.1	+0.0 +32.9 +0.1	+0.0 +0.5	+0.0	42.8	54.0 H_Z	-11.2	Vert
116	7384.000M Ave	36.8	+0.0 +0.0 -37.4	+0.0 +0.0 +5.6	+0.0 +36.2 +0.1	+0.0 +0.2	+0.0	41.5	54.0 H_Y	-12.5	Horiz
117	7364.800M Ave	36.8	+0.0 +0.0 -37.4	+0.0 +0.0 +5.6	+0.0 +36.1 +0.1	+0.0 +0.1	+0.0	41.3	54.0 M_X	-12.7	Vert
118	7344.800M Ave	36.7	+0.0 +0.0 -37.4	+0.0 +0.0 +5.6	+0.0 +36.1 +0.1	+0.0 +0.1	+0.0	41.2	54.0 L_X	-12.8	Vert
119	7383.917M Ave	36.4	+0.0 +0.0 -37.4	+0.0 +0.0 +5.6	+0.0 +36.2 +0.1	+0.0 +0.2	+0.0	41.1	54.0 H_Z	-12.9	Vert
120	2754.200M	46.3	+0.0 +0.0 -38.6	+0.0 +0.0 +3.3	+0.0 +29.4 +0.2	+0.0 +0.3	+0.0	40.9	54.0 L_X	-13.1	Vert
121	7364.800M Ave	35.9	+0.0 +0.0 -37.4	+0.0 +0.0 +5.6	+0.0 +36.1 +0.1	+0.0 +0.1	+0.0	40.4	54.0 M_X	-13.6	Horiz

122	7364.800M Ave	35.8	+0.0 +0.0 -37.4	+0.0 +0.0 +5.6	+0.0 +36.1 +0.1	+0.0 +0.1	+0.0	40.3	54.0 M_Z	-13.7	Vert
^	7364.800M	44.7	+0.0 +0.0 -37.4	+0.0 +0.0 +5.6	+0.0 +36.1 +0.1	+0.0 +0.1	+0.0	49.2	54.0 M_X	-4.8	Vert
^	7364.800M	44.4	+0.0 +0.0 -37.4	+0.0 +0.0 +5.6	+0.0 +36.1 +0.1	+0.0 +0.1	+0.0	48.9	54.0 M_Z	-5.1	Vert
125	1836.233M	48.3	+0.0 +0.0 -38.9	+0.0 +0.0 +2.5	+0.0 +27.1 +0.3	+0.0 +0.2	+0.0	39.5	54.0 L_Y	-14.5	Vert
126	7344.750M Ave	34.7	+0.0 +0.0 -37.4	+0.0 +0.0 +5.6	+0.0 +36.1 +0.1	+0.0 +0.1	+0.0	39.2	54.0 L_X	-14.8	Horiz
^	7344.750M	44.0	+0.0 +0.0 -37.4	+0.0 +0.0 +5.6	+0.0 +36.1 +0.1	+0.0 +0.1	+0.0	48.5	54.0 L_X	-5.5	Horiz
128	7384.000M Ave	34.4	+0.0 +0.0 -37.4	+0.0 +0.0 +5.6	+0.0 +36.2 +0.1	+0.0 +0.2	+0.0	39.1	54.0 H_X	-14.9	Horiz
^	7384.000M	45.2	+0.0 +0.0 -37.4	+0.0 +0.0 +5.6	+0.0 +36.2 +0.1	+0.0 +0.2	+0.0	49.9	54.0 H_X	-4.1	Horiz
^	7384.000M	44.5	+0.0 +0.0 -37.4	+0.0 +0.0 +5.6	+0.0 +36.2 +0.1	+0.0 +0.2	+0.0	49.2	54.0 H_Y	-4.8	Horiz
^	7383.917M	42.0	+0.0 +0.0 -37.4	+0.0 +0.0 +5.6	+0.0 +36.2 +0.1	+0.0 +0.2	+0.0	46.7	54.0 H_Z	-7.3	Horiz
132	7344.867M Ave	33.9	+0.0 +0.0 -37.4	+0.0 +0.0 +5.6	+0.0 +36.1 +0.1	+0.0 +0.1	+0.0	38.4	54.0 L_Y	-15.6	Horiz
^	7344.867M	44.2	+0.0 +0.0 -37.4	+0.0 +0.0 +5.6	+0.0 +36.1 +0.1	+0.0 +0.1	+0.0	48.7	54.0 L_Y	-5.3	Horiz
134	7364.800M Ave	33.4	+0.0 +0.0 -37.4	+0.0 +0.0 +5.6	+0.0 +36.1 +0.1	+0.0 +0.1	+0.0	37.9	54.0 M_Y	-16.1	Horiz
135	7384.000M Ave	33.2	+0.0 +0.0 -37.4	+0.0 +0.0 +5.6	+0.0 +36.2 +0.1	+0.0 +0.2	+0.0	37.9	54.0 H_Y	-16.1	Vert
136	1836.070M	46.7	+0.0 +0.0 -38.9	+0.0 +0.0 +2.5	+0.0 +27.1 +0.3	+0.0 +0.2	+0.0	37.9	54.0 L_Z	-16.1	Horiz
137	1836.070M	46.6	+0.0 +0.0 -38.9	+0.0 +0.0 +2.5	+0.0 +27.1 +0.3	+0.0 +0.2	+0.0	37.8	54.0 L_X	-16.2	Horiz

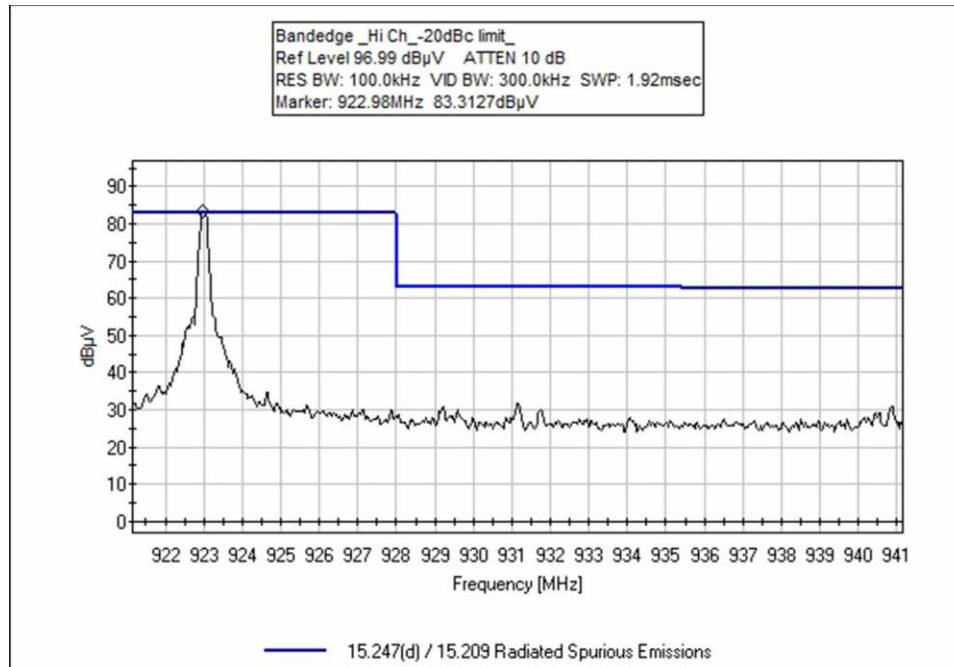
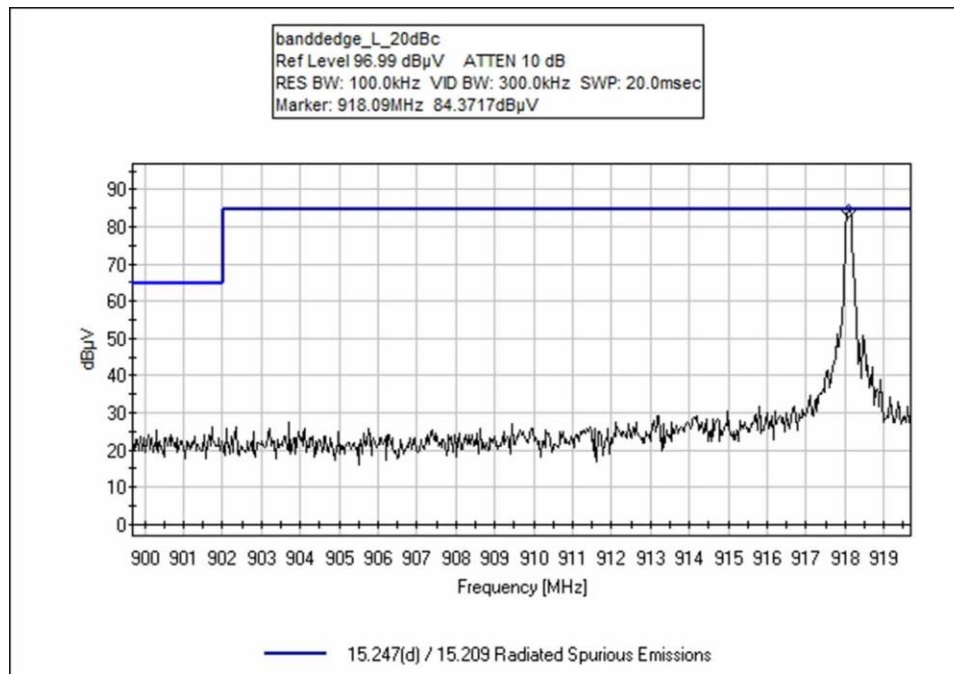
138	7344.717M Ave	33.3	+0.0 +0.0 -37.4	+0.0 +0.0 +5.6	+0.0 +36.1 +0.1	+0.0 +0.1	+0.0	37.8	54.0 L_Z	-16.2	Vert
^	7344.800M	45.0	+0.0 +0.0 -37.4	+0.0 +0.0 +5.6	+0.0 +36.1 +0.1	+0.0 +0.1	+0.0	49.5	54.0 L_X	-4.5	Vert
140	7384.000M Ave	33.0	+0.0 +0.0 -37.4	+0.0 +0.0 +5.6	+0.0 +36.2 +0.1	+0.0 +0.2	+0.0	37.7	54.0 H_X	-16.3	Vert
^	7383.917M	44.3	+0.0 +0.0 -37.4	+0.0 +0.0 +5.6	+0.0 +36.2 +0.1	+0.0 +0.2	+0.0	49.0	54.0 H_Z	-5.0	Vert
^	7384.000M	44.1	+0.0 +0.0 -37.4	+0.0 +0.0 +5.6	+0.0 +36.2 +0.1	+0.0 +0.2	+0.0	48.8	54.0 H_X	-5.2	Vert
^	7384.000M	43.9	+0.0 +0.0 -37.4	+0.0 +0.0 +5.6	+0.0 +36.2 +0.1	+0.0 +0.2	+0.0	48.6	54.0 H_Y	-5.4	Vert
144	7364.650M Ave	32.7	+0.0 +0.0 -37.4	+0.0 +0.0 +5.6	+0.0 +36.1 +0.1	+0.0 +0.1	+0.0	37.2	54.0 M_Y	-16.8	Vert
^	7364.650M	43.8	+0.0 +0.0 -37.4	+0.0 +0.0 +5.6	+0.0 +36.1 +0.1	+0.0 +0.1	+0.0	48.3	54.0 M_Y	-5.7	Vert
146	1836.233M	45.9	+0.0 +0.0 -38.9	+0.0 +0.0 +2.5	+0.0 +27.1 +0.3	+0.0 +0.2	+0.0	37.1	54.0 L_Y	-16.9	Horiz
147	1836.130M	45.7	+0.0 +0.0 -38.9	+0.0 +0.0 +2.5	+0.0 +27.1 +0.3	+0.0 +0.2	+0.0	36.9	54.0 L_X	-17.1	Vert
148	7364.800M Ave	32.2	+0.0 +0.0 -37.4	+0.0 +0.0 +5.6	+0.0 +36.1 +0.1	+0.0 +0.1	+0.0	36.7	54.0 M_Z	-17.3	Horiz
^	7364.800M	44.0	+0.0 +0.0 -37.4	+0.0 +0.0 +5.6	+0.0 +36.1 +0.1	+0.0 +0.1	+0.0	48.5	54.0 M_X	-5.5	Horiz
^	7364.800M	42.8	+0.0 +0.0 -37.4	+0.0 +0.0 +5.6	+0.0 +36.1 +0.1	+0.0 +0.1	+0.0	47.3	54.0 M_Y	-6.7	Horiz
^	7364.800M	42.7	+0.0 +0.0 -37.4	+0.0 +0.0 +5.6	+0.0 +36.1 +0.1	+0.0 +0.1	+0.0	47.2	54.0 M_Z	-6.8	Horiz

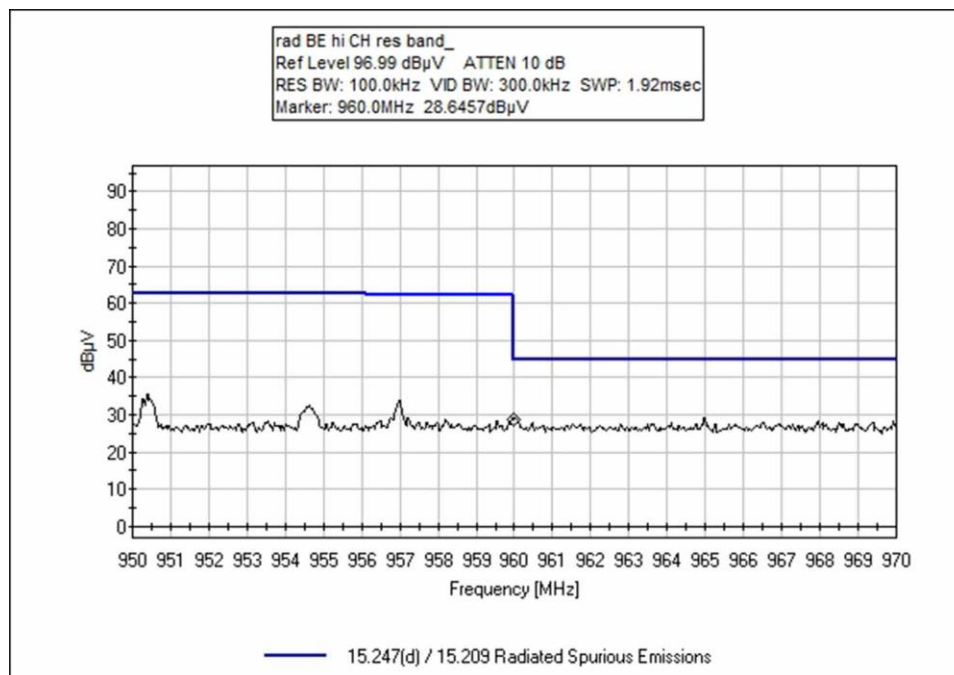
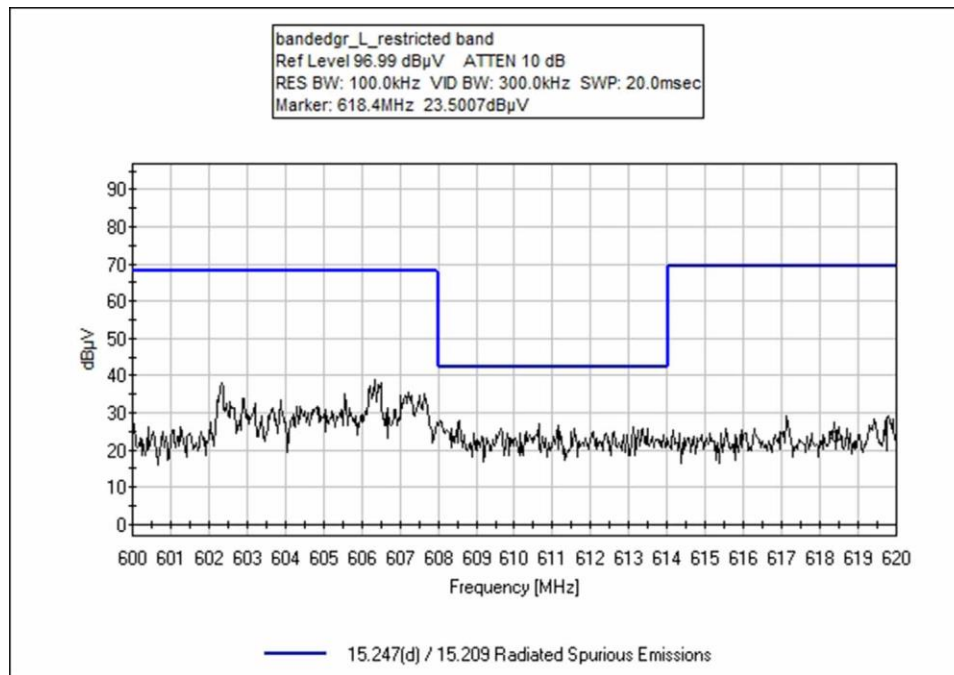
152	7344.633M	30.4	+0.0	+0.0	+0.0	+0.0	+0.0	34.9	54.0	-19.1	Vert
	Ave		+0.0	+0.0	+36.1	+0.1			L_Y		
			-37.4	+5.6	+0.1						
^	7344.717M	43.8	+0.0	+0.0	+0.0	+0.0	+0.0	48.3	54.0	-5.7	Vert
			+0.0	+0.0	+36.1	+0.1			L_Z		
			-37.4	+5.6	+0.1						
^	7344.633M	42.7	+0.0	+0.0	+0.0	+0.0	+0.0	47.2	54.0	-6.8	Vert
			+0.0	+0.0	+36.1	+0.1			L_Y		
			-37.4	+5.6	+0.1						
155	207.812M	28.3	+0.0	+9.8	+6.0	+2.7	+0.0	19.0	43.5	-24.5	Horiz
			-28.0	+0.2	+0.0	+0.0			L_X		
			+0.0	+0.0	+0.0						

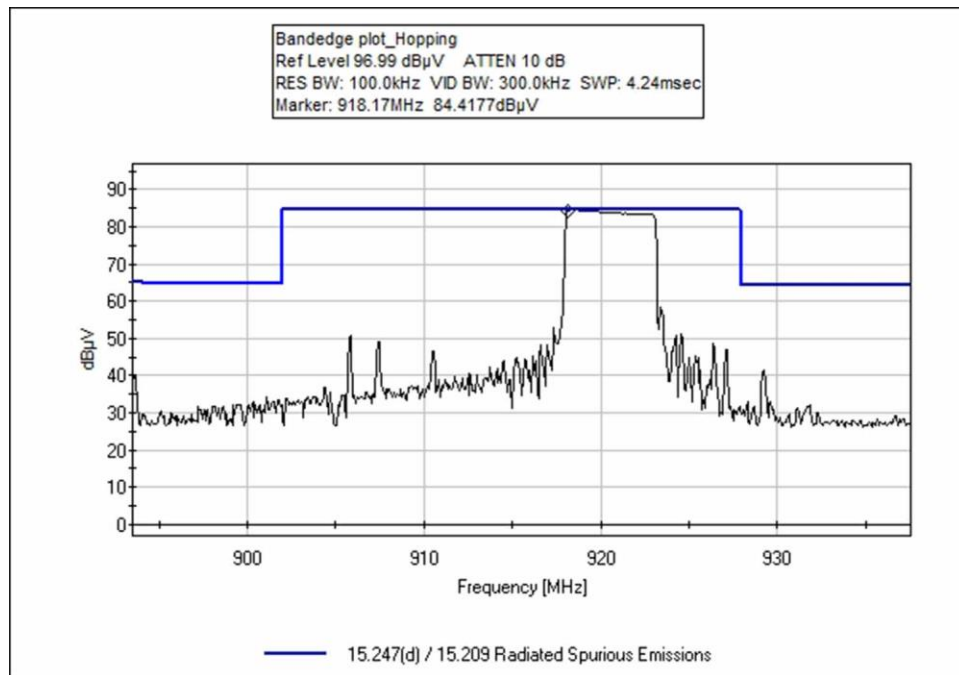
Band Edge

Band Edge Summary					
Frequency (MHz)	Modulation	Ant. Type	Field Strength (dBuV/m @3m)	Limit (dBuV/m @3m)	Results
614	GFSK	Integral	30.2	< 46	Pass
902	GFSK	Integral	32.1	< 71.4	Pass
928	GFSK	Integral	36.7	< 71.4	Pass
960	GFSK	Integral	38.2	< 54	Pass
902	GFSK, hopping	Integral	28.0	< 71.4	Pass
928	GFSK, hopping	Integral	39.2	< 71.4	Pass

Band Edge Plots







Test Setup / Conditions / Data

Test Location: CKC Laboratories Inc. • 110 N. Olinda Place • Brea, CA 92823 • 714-993-6112
 Customer: **Indyme Solutions, LLC**
 Specification: **15.247(d) / 15.209 Radiated Spurious Emissions**
 Work Order #: **101728** Date: 1/8/2019
 Test Type: **Maximized Emissions** Time: 10:39:39
 Tested By: Don Nguyen Sequence#: 1
 Software: EMITest 5.03.11

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

The equipment under test (EUT) is placed on tabletop and set to transmit continuously. The EUT is rotated in 3 axis. Operating frequency: 918.1MHz to 923MHz. Tested frequencies: 918.1MHz, 920.6MHz, 923MHz. Frequency range of data sheet 614-960MHz Restricted band: RBW=120kHz, VBW=360kHz -20dBc limit: RBW=100kHz, VBW=300kHz Temperature: 22.7°C, Humidity: 38.4% Site A. Test Method: ANSI C63.10 (2013) Data represents the worst-case orientation.

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00309	Preamplifier	8447D	2/19/2018	2/19/2020
T2	AN01995	Biconilog Antenna	CBL6111C	4/23/2018	4/23/2020
T3	ANP05275	Attenuator	1W	4/5/2018	4/5/2020
T4	ANP05050	Cable	RG223/U	1/20/2017	1/20/2019
T5	ANP05198	Cable-Amplitude	8268	12/4/2018	12/4/2020
		+15C to +45C (dB)			
T6	AN02869	Spectrum Analyzer	E4440A	8/10/2018	8/10/2019

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBμV	T5	T6							
			dB	dB	dB	dB	Table	dBμV/m	dBμV/m	dB	Ant
1	902.000M	24.0	-27.2	+22.8	+6.1	+0.5	+0.0	32.1	71.4	-39.3	Horiz
			+5.9	+0.0							

Test Location: CKC Laboratories Inc. • 110 N. Olinda Place • Brea, CA 92823 • 714-993-6112
 Customer: **Indyme Solutions, LLC**
 Specification: **15.247(d) / 15.209 Radiated Spurious Emissions**
 Work Order #: **101728** Date: 1/22/2019
 Test Type: **Maximized Emissions** Time: 09:57:35
 Tested By: E. Wong Sequence#: 2
 Software: EMITest 5.03.11

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

The equipment under test (EUT) is placed on Styrofoam platform and set to transmit continuously. The EUT is rotated in 3 axis. Operating frequency: 918.1MHz to 923MHz. Tested frequencies: 918.1MHz, 920.6MHz, 923MHz. Frequency range of data sheet 614-960MHz Restricted band: RBW=120kHz, VBW=360kHz -20dBc limit: RBW=100kHz, VBW=300kHz Temperature: 22.7°C, Humidity: 38.4% Site A. Test Method: ANSI C63.10 (2013) Data represents the worst-case orientation.

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00309	Preamp	8447D	2/19/2018	2/19/2020
T2	AN01995	Biconilog Antenna	CBL6111C	4/23/2018	4/23/2020
T3	ANP05275	Attenuator	1W	4/5/2018	4/5/2020
T4	ANP05198	Cable-Amplitude +15C to +45C (dB)	8268	12/4/2018	12/4/2020
T5	AN02869	Spectrum Analyzer	E4440A	8/10/2018	8/10/2019
T6	ANP05050	Cable	RG223/U	12/24/2018	12/24/2020

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dB μ V	dB	dB	dB	dB	Table	dB μ V/m	dB μ V/m	dB	Ant
1	614.000M	26.6	-27.5 +0.0	+20.0 +0.4	+6.0	+4.7	+0.0	30.2	46.0	-15.8	Horiz
2	960.000M	29.2	-27.3 +0.0	+23.7 +0.4	+6.1	+6.1	+0.0	38.2	54.0	-15.8	Horiz
3	928.061M	30.8	-27.3 +0.0	+23.2 +0.4	+6.1	+6.0	+0.0	39.2	72.9 Hopping	-33.7	Horiz
4	928.000M	28.3	-27.3 +0.0	+23.2 +0.4	+6.1	+6.0	+0.0	36.7	72.9	-36.2	Horiz
5	902.061M	20.0	-27.2 +0.0	+22.8 +0.4	+6.1	+5.9	+0.0	28.0	92.9 Hopping	-64.9	Horiz

Test Setup Photo(s)



Below 1GHz



Above 1GHz, Cone placement



Above 1GHz, Cone placement



X Axis



Y Axis



Z Axis

Appendix A: Manufacturer Declaration

The following model has been tested by CKC Laboratories: **CB965**

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

CB966

CB967

SUPPLEMENTAL INFORMATION

Measurement Uncertainty

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

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

Emissions Test Details

TESTING PARAMETERS

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

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

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

CORRECTION FACTORS

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

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

TEST INSTRUMENTATION AND ANALYZER SETTINGS

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

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

SPECTRUM ANALYZER/RECEIVER DETECTOR FUNCTIONS

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

Peak

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

Quasi-Peak

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

Average

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