



GTCO CALCOMP ADDENDUM TO FC01-017
FOR THE
MEETING PAD, 36080
FCC PART 15 SUBPART B SECTION 15.109 CLASS B,
FCC PART 15 SUBPART C SECTIONS 15.207, 15.209 & 15.249
COMPLIANCE

DATE OF ISSUE: MAY 2, 2001

PREPARED FOR:

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Date of test: February 5-14, 2001
& May 1, 2001

Report No.: FC01-017A

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CKC Laboratories, Inc. has received Certificates of Accreditation from the following agencies:

A2LA (USA); DATech (Germany); BSMI (Taiwan); Nemko (Norway); and GOST (Russia).

CKC Laboratories, Inc has received test site Registration Acceptance from the following agencies:

FCC (USA); VCCI (Japan); and Industry Canada.

CKC Laboratories, Inc. has received Letters of Acceptance through an MRA for the following agencies:

ACA/NATA (Australia); SABS (South Africa); SWEDAC (Sweden); Radio Communications Agency (RA); HOKLAS (Hong Kong); Bakom (Swiss); BIPT (Belgium); Denmark Telestyrelsen; RvA (Netherlands); SEE (Luxembourg) SITTEL (Bolivia); and UKAS (UK).

ADMINISTRATIVE INFORMATION

DATE OF TEST: February 5-14 and May 1, 2001

DATE OF RECEIPT: February 5, 2001

PURPOSE OF TEST: To demonstrate the compliance of the Meeting Pad, 36080 with the requirements for FCC Part 15 Subpart B Section 15.109 Class B, FCC Part 15 Subpart C Sections 15.207, 15.209 & 15.249 devices.
This addendum is to add 9 kHz- 30 MHz test data in order to show compliance to FCC Section 15.33.

TEST METHOD: ANSI C63.4 1992

MANUFACTURER: GTCO CalComp
14555 N. 82nd Street
Scottsdale, AZ 85260

REPRESENTATIVE: Ken Jacobson

TEST LOCATION: CKC Laboratories, Inc.
22105 Wilson River Hwy
Tillamook, OR 97141



SUMMARY OF RESULTS

As received, the GTCO CalComp Meeting Pad, 36080 was found to be fully compliant with the following standards and specifications:

United States

- FCC Part 15 Subpart B Class B Section 15.109
- FCC Part 15 Subpart C Section 15.207, 15.209 & 15.249
- ANSI C63.4 (1992) method

The results in this report apply only to the items tested, as identified herein.

Test Overview

Section	Test Type	Results
15.33	Frequency Ranges	Pass
15.35	Bandwidth Settings	Pass
15.203	Antenna Requirements	Pass
15.205	Restricted Band	Pass
15.207	Mains Conducted Emissions	Pass
15.215(c)	Additional Provisions to the General Radiated Emissions Limitations (Bandwidth)	Pass
15.249(a)	Field Strength of Fundamental Frequency	Pass
15.249(c)/15.209	Field Strength of Radiated Spurious Emissions	Pass

MODIFICATIONS REQUIRED FOR COMPLIANCE

No modifications to the EUT were necessary to comply.

APPROVALS

QUALITY ASSURANCE:

Dennis Ward, Quality Manager

TEST PERSONNEL:

Mike Wilkinson, Test Engineer

Pat Andre, Corp. Technical Advisor/
EMC Consultant



EQUIPMENT UNDER TEST (EUT) DESCRIPTION

The EUT tested by CKC Laboratories was a production unit.

Portable digitizer.

EQUIPMENT UNDER TEST

MeetingPad

Manuf: GTCO CalComp
Model: 36080-916
Serial: None
FCC ID: ECPDBIRF916

Power Supply 120V

Manuf: Ault
Model: P48091000C0X06
Serial: None
FCC ID: NA

PERIPHERAL DEVICES

The EUT was not tested with peripheral devices.



MODE OF OPERATION

The EUT was set up to continuously transmit data. This data can be monitored via a computer connected to the junction box.

15.33 FREQUENCY RANGE TESTED

15.249(a)(c) Radiated Emissions:	9 kHz – 10 GHz
15.207 Conducted Emissions:	450 kHz – 30 MHz
15.109/15.209 Radiated Emissions:	9 kHz – 5 GHz

EUT OPERATING FREQUENCY

The fundamental is 916 MHz, operating in the 902-928 MHz range.

TEMPERATURE AND HUMIDITY DURING TESTING

The temperature during testing was within +15°C and + 35°C.
The relative humidity was between 20% and 75%.

REPORT OF MEASUREMENTS

The following tables report the worst case emissions levels recorded during the tests performed on the Meeting Pad, 36080. All readings taken were peak readings unless otherwise stated. The data sheets from which the emissions tables were compiled are contained in Appendix C.

Table 1: 15.249(a) Field Strength of Fundamental Frequency - Transmitter

FREQUENCY MHz	METER READING dB μ V	CORRECTION FACTORS				CORRECTED READING dB μ V/m	SPEC LIMIT dB μ V/m	MARGIN dB	NOTES
		Ant dB	Amp dB	Cable dB	Dist dB				
916.555	79.9	22.2	-27.6	7.5		82.0	94.0	-12.0	V-1
916.556	85.2	22.2	-27.6	7.5		87.3	94.0	-6.7	H-1
916.556	78.2	22.2	-27.6	7.5		80.3	94.0	-13.7	H-3
916.556	73.7	22.2	-27.6	7.5		75.8	94.0	-18.2	V-3
916.558	78.7	22.2	-27.6	7.5		80.8	94.0	-13.2	V-2
916.559	74.5	22.2	-27.6	7.5		76.6	94.0	-17.4	H-2

Test Method: ANSI C63.4 1992
Spec Limit: FCC Section 15.249(a)
Test Distance: 3 Meters

NOTES: H = Horizontal Polarization
V = Vertical Polarization
1 = EUT in Horizontal Orthogonal
2 = EUT in Vertical Orthogonal
3 = EUT in Side Orthogonal

COMMENTS: EUT is transmitting continuously at 916 MHz with modulation. The attached writing stylus is in contact with the writing surface. EUT was measured in 3 orthogonal planes as noted for each reading. The temperature was 70°F and the humidity was 40%. AC input was 120 V, 60 Hz.

Table 2: 15.209/15.249(c) Six Highest Radiated Spurious Emission Levels - Transmitter

FREQUENCY MHz	METER READING dB μ V	CORRECTION FACTORS				CORRECTED READING dB μ V/m	SPEC LIMIT dB μ V/m	MARGIN dB	NOTES
		Ant dB	Amp dB	Cable dB	Dist dB				
1833.100	55.3	27.2	-42.0	6.4		46.9	54.0	-7.1	H-1
1833.105	60.7	27.2	-42.0	6.4		52.3	54.0	-1.7	H-3
1833.105	55.4	27.2	-42.0	6.4		47.0	54.0	-7.0	V-2
1833.105	53.8	27.2	-42.0	6.4		45.4	54.0	-8.6	H-2
1833.105	53.2	27.2	-42.0	6.4		44.8	54.0	-9.2	V-3
1833.114	56.4	27.2	-42.0	6.4		48.0	54.0	-6.0	V-1

Test Method: ANSI C63.4 1992
Spec Limit: FCC Section 15.209/15.249(c)
Test Distance: 3 Meters

NOTES: H = Horizontal Polarization
V = Vertical Polarization
1 = EUT in Horizontal Orthogonal
2 = EUT in Vertical Orthogonal
3 = EUT in Side Orthogonal

COMMENTS: Data in this table is comprised from several test data sheets. See Appendix C for individual test conditions.

Table 3: 15.207 Six Highest Conducted Emission Levels - Transmitter

FREQUENCY MHz	METER READING dB μ V	CORRECTION FACTORS				CORRECTED READING dB μ V	SPEC LIMIT dB μ V	MARGIN dB	NOTES
		L13w dB	T1co dB						
0.452090	40.4	0.1	0.0			40.5	48.0	-7.5	W
0.462537	40.3	0.1	0.0			40.4	48.0	-7.6	W
0.472985	40.7	0.1	0.0			40.8	48.0	-7.2	W
0.510596	40.0	0.1	0.0			40.1	48.0	-7.9	W
0.518953	39.0	0.1	0.0			39.1	48.0	-8.9	W
0.541938	39.3	0.1	0.0			39.4	48.0	-8.6	W

Test Method: ANSI C63.4 1992
Spec Limit: FCC Section 15.207

NOTES: W = White Lead

COMMENTS: EUT is transmitting continuously at 916 MHz with modulation. The attached writing stylus is in contact with the writing surface. EUT was in the horizontal position. The temperature was 70°F and the humidity was 40%. AC input was 120 V, 60 Hz. Frequency range investigated was 450 kHz to 30 MHz.

Table 4: 15.109/15.209 Six Highest Radiated Emission Levels - Receiver

FREQUENCY MHz	METER READING dB μ V	CORRECTION FACTORS				CORRECTED READING dB μ V/m	SPEC LIMIT dB μ V/m	MARGIN dB	NOTES
		Ant dB	Amp dB	Cable dB	Dist dB				
36.090	41.6	15.8	-27.2	1.6		31.8	40.0	-8.2	V
260.630	30.1	12.6	-26.5	4.1		20.3	46.0	-25.7	V
0.800	35.0	10.8	0.0	0.6		46.4	69.6	-23.2	N
516.800	30.1	18.1	-27.8	5.7		26.1	46.0	-19.9	V
916.000	27.5	23.3	-27.6	7.5		30.7	46.0	-15.3	V
1625.000	28.4	25.5	-42.0	5.3		17.2	54.0	-36.8	V

Test Method: ANSI C63.4 1992
Spec Limit: FCC Section 15.109/15.209
Test Distance: 3 Meters

NOTES: V = Vertical Polarization
N = No Polarization

COMMENTS: Data in this table is comprised from several test data sheets. See Appendix C for individual test conditions.



MEASUREMENT UNCERTAINTY

Associated with data in this report is a ± 4 dB measurement uncertainty.

EUT SETUP

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the photographs in Appendix A. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables. The corrected data was then compared to the applicable emission limits to determine compliance.

The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available I/O ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. I/O cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The radiated and conducted emissions data of the Meeting Pad, 36080 were taken with the HP Spectrum Analyzer. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in Table A.

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 μ V/m, the spectrum analyzer reading in dB μ V was corrected by using the following formula in Table A. This reading was then compared to the applicable specification limit to determine compliance.

TABLE A: SAMPLE CALCULATIONS		
	Meter reading	(dB μ V)
+	Antenna Factor	(dB)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dB μ V/m)

A typical data sheet will display the following in column format:

#	Freq	Rdng	Amp-A	Bicon	Cbl-2	Cable	Corr	Spec	Margin	Polar
		Mag L	Bilog	Horn	L14b	L13W	1.5G	26.5	T1co	

means reading number.

Freq is the frequency in MHz of the obtained reading.

Rdng is the reading obtained on the spectrum analyzer in dB μ V.

26.5, Pre-Amp is the preamplifier factor or gain in dB.

Mag L is the magnetic loop antenna factor in dB.

Bicon is the biconical antenna factor in dB.

Bilog is the biconilog antenna factor in dB.

Horn is the horn antenna factor in dB.

T1co, Cbl-2, Cable is the cable loss in dB of the coaxial cable on the OATS.

1.5G is the cable loss in dB of the high frequency coaxial cable on the OATS.

Corr is the corrected reading in dB μ V/m (field strength).

Spec is the specification limit (dB) stated in the FCC regulations.

Margin is the closeness to the specified limit in dB; + is over and - is under the limit.

Polar is the polarity of the antenna with respect to earth.

L13W, L14b is the line impedance stabilization network factor in dB for conducted emissions.

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed in Appendix B were used to collect both the radiated and conducted emissions data for the Meeting Pad, 36080. For testing below 30 MHz the magnetic loop antenna was used. For radiated measurements from 30 to 1000 MHz, the biconilog antenna was used. The horn antenna was used for frequencies above 1000 MHz. Conducted emissions tests required the use of the FCC type LISNs.

The HP spectrum analyzer was used for all measurements. Table B shows the analyzer bandwidth settings that were used in designated frequency bands. For conducted emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used. A 10 dB external attenuator was also used during conducted tests, with internal offset correction in the analyzer. During radiated testing, the measurements were made with 0 dB of attenuation, a reference level of 97 dB μ V, and a vertical scale of 10 dB per division.

FCC SECTION 15.35: TABLE B: ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	450 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	10 GHz	1 MHz

SPECTRUM ANALYZER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the Tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "Peak" mode. Whenever a "Quasi-Peak" or "Average" reading is listed as one of the six highest readings, this is indicated as a "Q" or an "A" in the appropriate table. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data for the Meeting Pad, 36080.

Peak

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

Quasi-Peak

When the true peak values exceeded or were within 2 dB of the specification limit, quasi-peak measurements were taken using the HP Quasi-Peak Adapter for the HP Spectrum Analyzer. The detailed procedure for making quasi peak measurements contained in the HP Quasi-Peak Adapter manual were followed.

Average

For certain frequencies, average measurements may be made using the spectrum analyzer. To make these measurements, the test engineer reduces the video bandwidth on the analyzer until the modulation of the signal is filtered out. At this point the analyzer is set into the linear mode and the scan time is reduced.

EUT TESTING

Radiated Emissions

The EUT was mounted on a nonconductive, rotating table 80 cm above the conductive grid. The nonconductive table dimensions were 1 meter by 1.5 meters.

During the preliminary radiated scan, the EUT was powered up and operating in its defined FCC test mode. For testing below 30 MHz the magnetic loop antenna was used. The frequency range of 30 MHz to 1000 MHz was scanned with the biconilog antenna located about 1.5 meter above the ground plane in the vertical polarity. During this scan, the turntable was rotated and all peaks at or near the limit were recorded. A scan of the FM band from 88 to 110 MHz was then made using a reduced resolution bandwidth and frequency span. The biconilog antenna was changed to the horizontal polarity and the above steps were repeated. For frequencies exceeding 1000 MHz, the horn antenna was used. Care was taken to ensure that no frequencies were missed within the FM and TV bands. An analysis was performed to determine if the signals that were at or near the limit were caused by an ambient transmission. If unable to determine by analysis, the equipment was powered down to make the final determination if the EUT was the source of the emission.

A thorough scan of all frequencies was made manually using a small frequency span, rotating the turntable as needed. The test engineer maximized the readings with respect to the table rotation and configuration of EUT. Maximizing of the EUT was achieved by monitoring the spectrum analyzer on a closed circuit television monitor. Photographs showing the final worst case configuration of the EUT are contained in Appendix A.

Mains Conducted Emissions

During conducted emissions testing, the EUT was located on a wooden table measuring approximately 80 cm high, 1 meter deep, and 1.5 meters in length. One wall of the room where the EUT was located has a minimum 2 meter by 2 meter conductive plane. The EUT was mounted on the wooden table 40 cm away from the conductive plane, and 80 cm from any other conductive surface.

The vertical metal plane used for conducted emissions was grounded to the earth. Power to the EUT was provided through a LISN. The LISN was grounded to the ground plane. All other objects were kept a minimum of 80 cm away from the EUT during the conducted test.

For conducted emissions testing, a 30 to 50 second sweep time was used for automated measurements in the frequency bands of 450 kHz to 1.705 MHz, 1.705 MHz to 3 MHz, and 3 MHz to 30 MHz. All readings within 20 dB of the limit were recorded. At frequencies where the recorded emissions were close to the limit, further investigation was performed manually at a slower sweep rate.

TRANSMITTER CHARACTERISTICS

15.203 Antenna Requirements

Antenna Type: Integral
Connection to EUT: Integral, non-removable

The antenna is an integral part of the EUT and is NON-Removable; therefore the EUT complies with Section 15.203 of the FCC rules.

15.205 Restricted Bands

Operating frequency: 916 MHz.

The fundamental operating frequency lies outside the restricted bands and therefore complies with the requirements of Section 15.205 of the FCC rules.

Any spurious emission coming from the EUT was investigated to determine if any portion lies inside the restricted band. If any portion of a spurious emissions signal was found to be within a restricted band, investigation was performed to ensure compliance with Section 15.209.

15.215 Additional Provisions to the General Radiated Emission Limitations

The fundamental frequency was kept within the central 80% of the permitted band in order to minimize the possibility of out-of-band operation. Refer to Appendix B for the test equipment used and Appendix C for the occupied bandwidth plot(s).

15.249(a) Power Output

The maximum field strength of the fundamental was measured to be 87.3 dB μ V/m when measured at a test distance of three meters. This measurement was made with the EUT's integral antenna, as there is no provision for connecting an external antenna.

APPENDIX A

INFORMATION ABOUT THE EQUIPMENT UNDER TEST



INFORMATION ABOUT THE EQUIPMENT UNDER TEST	
Test Software/Firmware:	
CRT was displaying:	X-Y Data
Power Supply Manufacturer:	N/A
Power Supply Part Number:	N/A
AC Line Filter Manufacturer:	N/A
AC Line Filter Part Number:	N/A
Line voltage used during testing:	N/A

I/O PORTS	
Type	#
None	

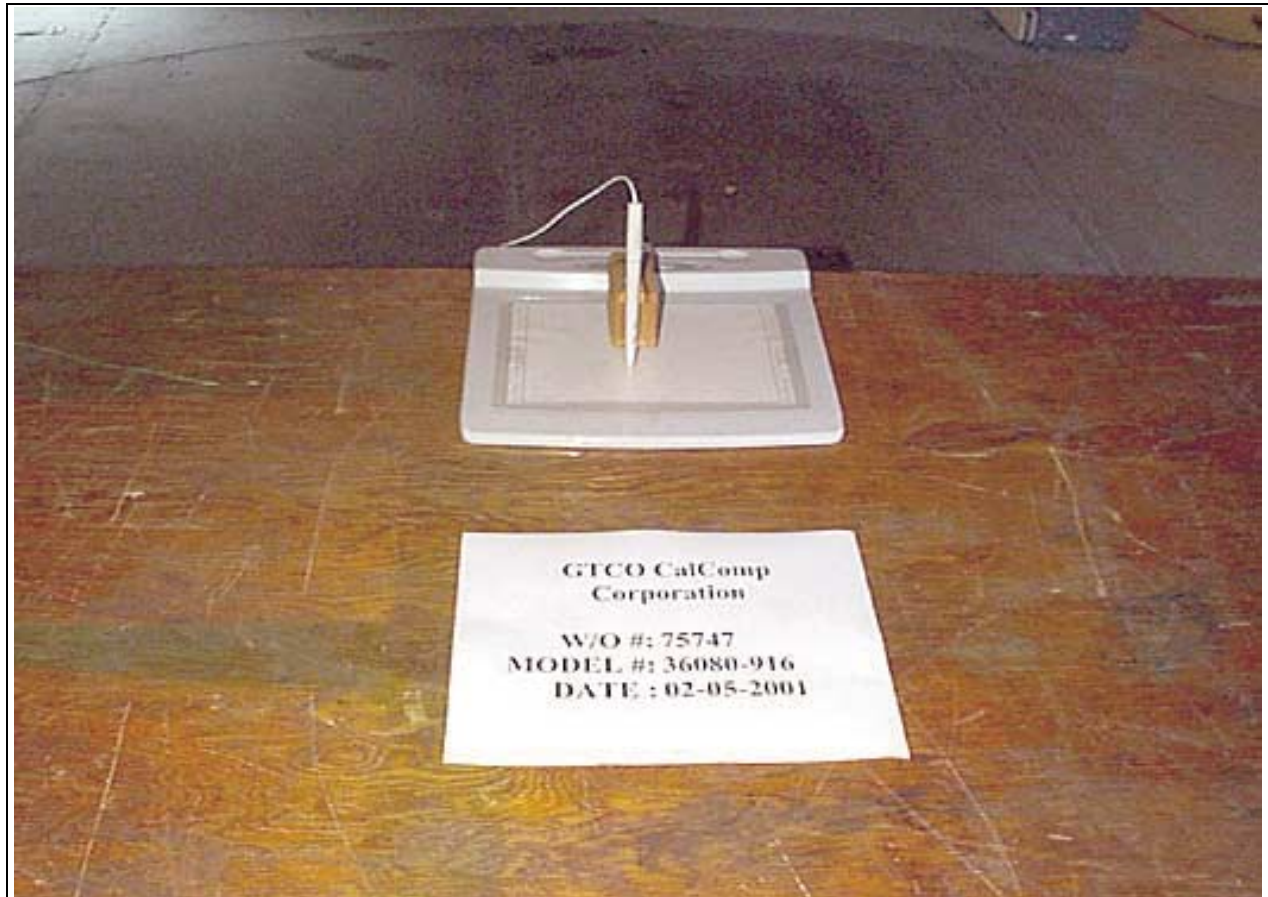
CRYSTAL OSCILLATORS	
Type	Freq In MHz
Crystal	3.686

PRINTED CIRCUIT BOARDS				
Function	Model & Rev	Clocks, MHz	Layers	Location
Main Board	35-902759 Rev 02 (Dom.), Rev 01 (Int.)	3.686	2	Inside

CABLE INFORMATION

Cable #:	None	Cable(s) of this type:	
Cable Type:		Shield Type:	
Construction:		Length In Meters:	
Connected To End (1):		Connected To End (2):	
Connector At End (1):		Connector At End (2):	
Shield Grounded At (1):		Shield Grounded At (2):	
Part Number:		Number of Conductors:	
Notes and/or description:			

PHOTOGRAPH SHOWING RADIATED EMISSIONS



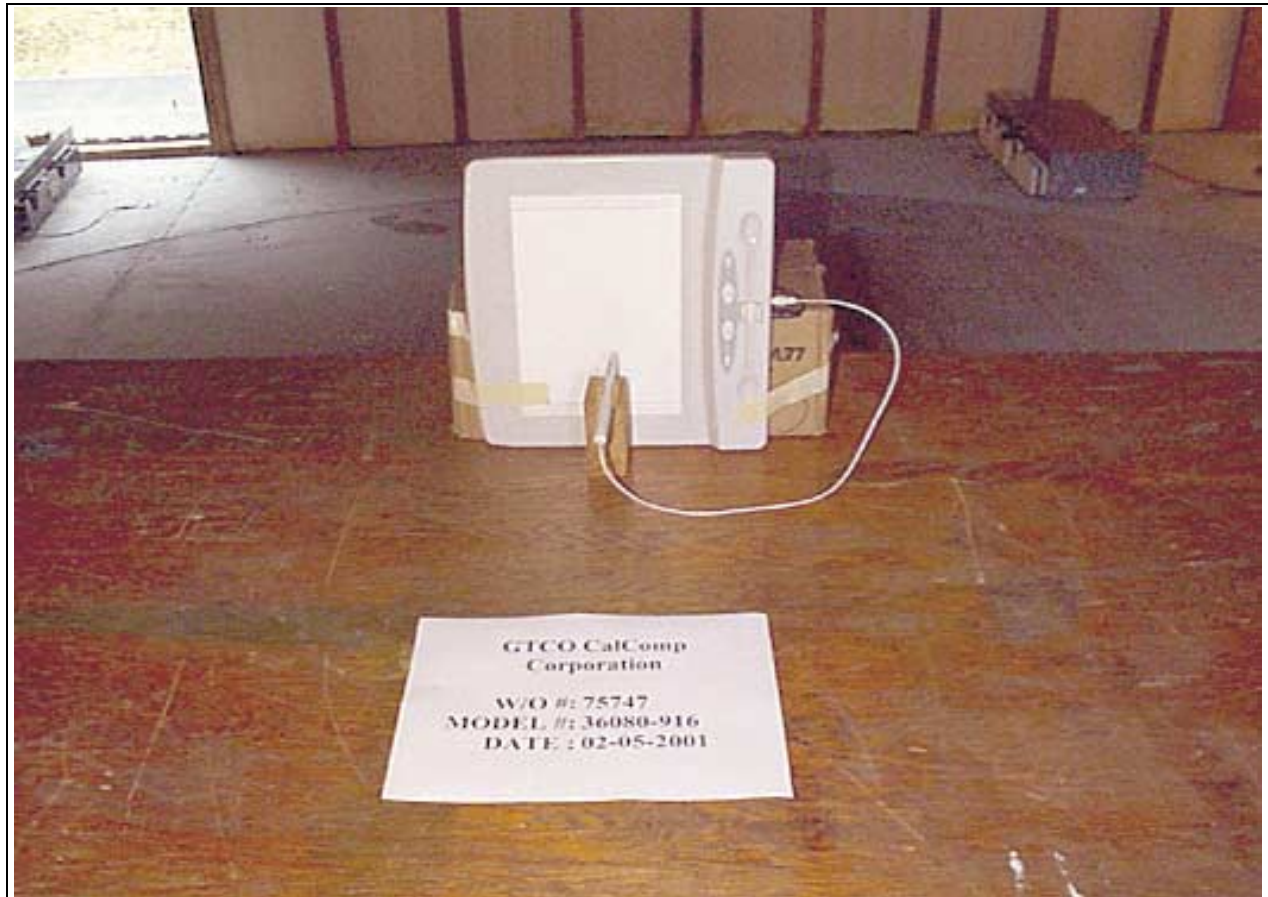
Radiated Emissions - Front View, Horizontal Orthogonal

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Back View, Horizontal Orthogonal

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Side Orthogonal

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Vertical Orthogonal

PHOTOGRAPH SHOWING CONDUCTED EMISSIONS



Conducted Emissions - Front View

PHOTOGRAPH SHOWING CONDUCTED EMISSIONS



Conducted Emissions - Side View



APPENDIX B

TEST EQUIPMENT LIST

Bandwidth and Band Edge - Transmitter

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8593EM EMC Analyzer	3624A00159	09/21/2000	09/21/2001	2111

Radiated Spurious Emissions - Transmitter

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8593EM EMC Analyzer	3624A00159	09/21/2000	09/21/2001	2111
HP 8447D Amplifier	2727A05392	02/14/2000	02/14/2001	10
Chase CBL6111C Bilog Antenna	2455	06/17/2000	06/17/2001	1992
HP 84300-80037 1.5 GHz High Pass Filter	3643A00027	03/02/2000	03/02/2001	2116
HP 83017A Amplifier 26GHz	0000009002	01/18/2001	01/18/2002	2114
EMCO 3115 1-18 GHz Horn Antenna	9006-3413	05/02/2000	05/02/2001	327
HP 8574A EMI Receiver	3010A01076	07/25/2000	07/25/2001	42
EMCO 6502 Mag Loop Antenna	2156	01/16/2001	01/16/2002	52

Mains Conducted Emissions - Transmitter

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8593EM EMC Analyzer	3624A00159	09/21/2000	09/21/2001	2111
Fischer LISN	None	01/04/2001	01/04/2002	13
Fischer LISN	None	01/04/2001	01/04/2002	14

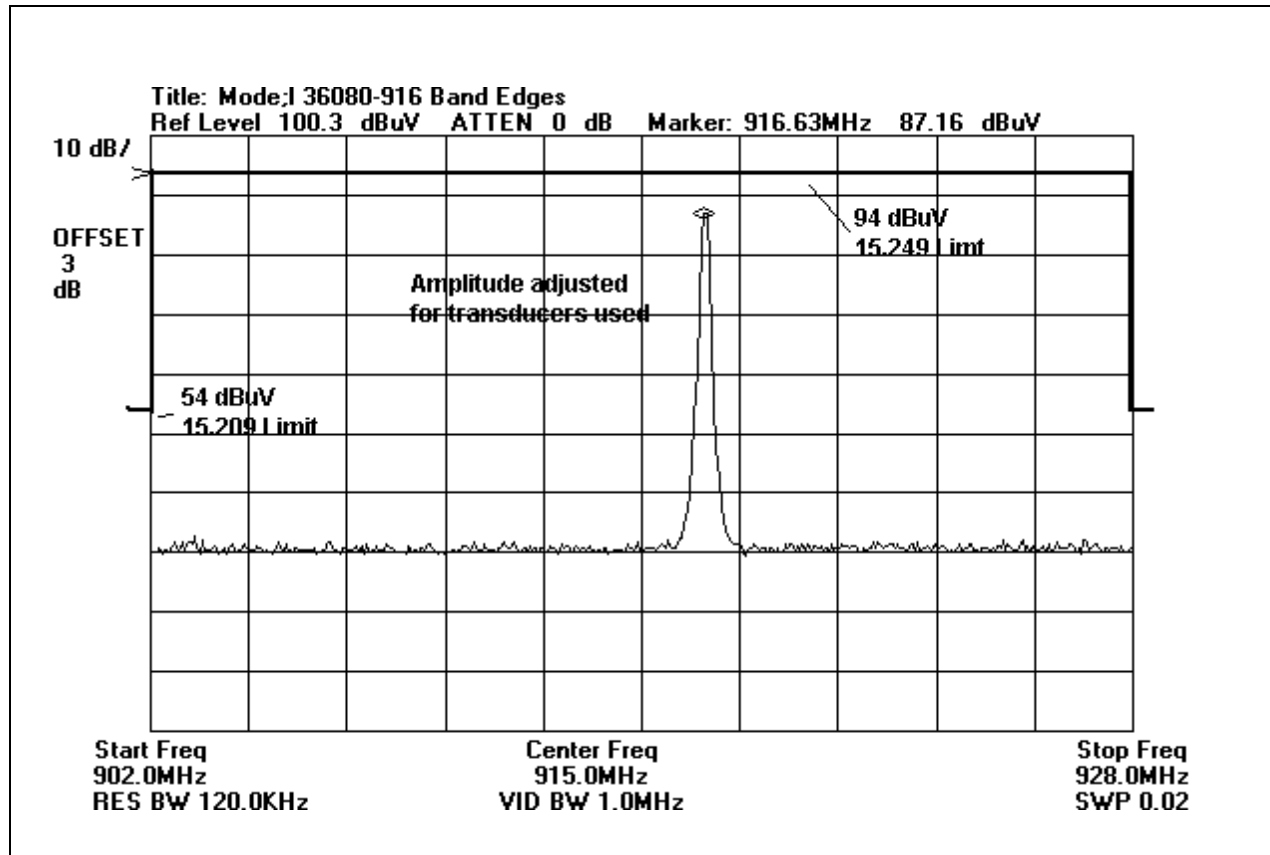
Radiated Spurious Emissions - Receiver

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8593EM EMC Analyzer	3624A00159	09/21/2000	09/21/2001	2111
HP 8447D Amplifier	2727A05392	09/26/2000	09/26/2001	10
Chase CBL6111C Bilog Antenna	2455	06/17/2000	06/17/2001	1992
HP 83017A Amplifier 26GHz	0000009002	01/18/2001	01/18/2002	2114
EMCO 3115 1-18 GHz Horn Antenna	9006-3413	05/02/2000	05/02/2001	327
HP 8574A EMI Receiver	3010A01076	07/25/2000	07/25/2001	42
EMCO 6502 Mag Loop Antenna	2156	01/16/2001	01/16/2002	52

APPENDIX C

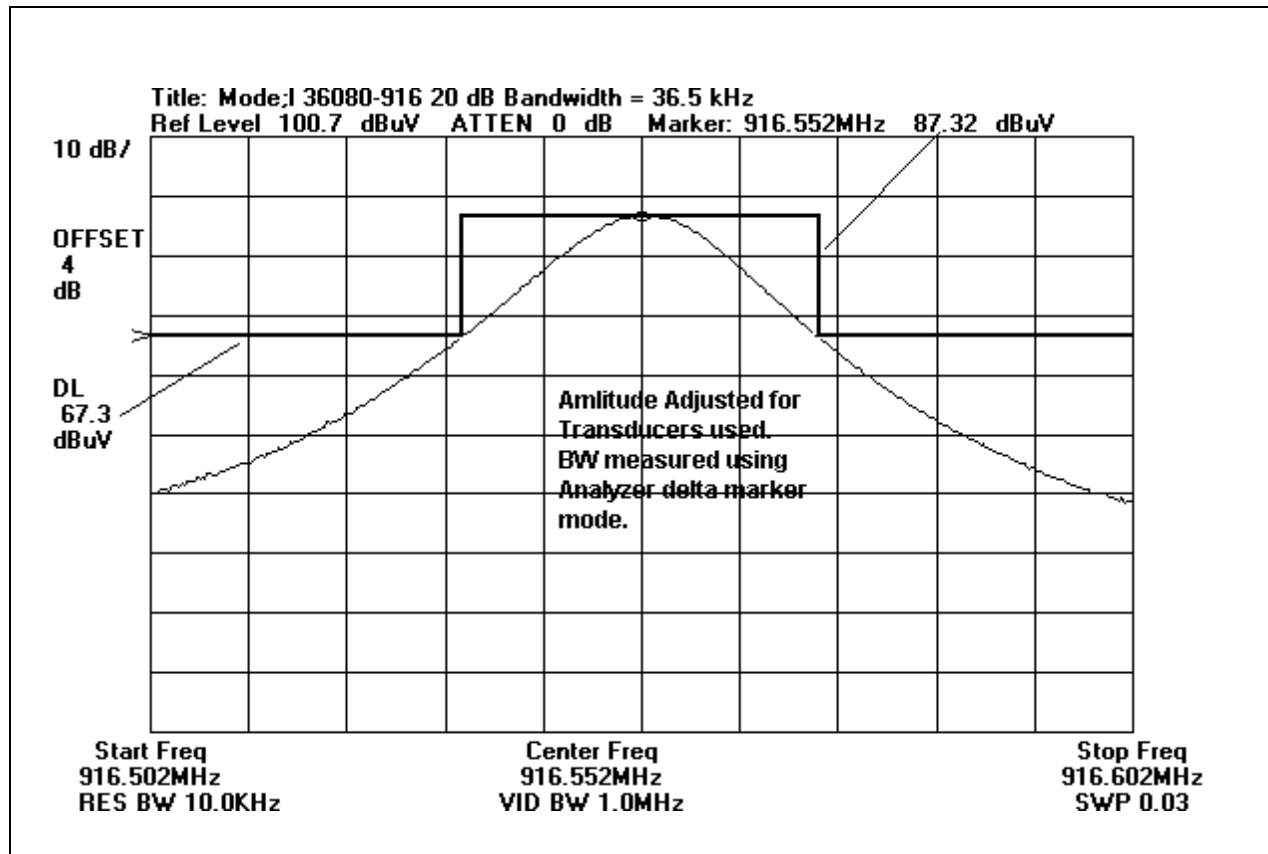
MEASUREMENT DATA SHEETS

15.215(c) BAND EDGE PLOT



Band Edge Plot

15.215(c) OCCUPIED BANDWIDTH PLOT – 916 MHz



Occupied Bandwidth Plot



Test Location: CKC Laboratories, Inc. • 22105 Wilson River Hwy • Tillamook, Or 97141 • 503 842-5577

Customer: **GTCO CalComp Corporation**
 Specification: **FCC15.209**
 Work Order #: **75747**
 Test Type: **Maximized Emissions**
 Equipment: **Drawing Board Personal**
 Manufacturer: **GTCO CalComp**
 Model: **36080-916**
 S/N: **none**

Date: 05/01/2001
 Time: 11:32:15
 Sequence#: 38
 Tested By: Mike Wilkinson

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Drawing Board Personal*	GTCO CalComp	36080-916	none
Power Supply 120V	Ault	P48091000C0X06	none

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

EUT is transmitting continuously at 916 MHz. The attached writing stylus is in contact with the writing surface. EUT was measured in the horizontal plane. The temperature was 67°F and the humidity was 47%. AC input was 120 V, 60 Hz. Frequency range investigated was 9 kHz to 30 MHz. All readings are ambient readings.

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	Mag L Cable		dB	dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
			dB	dB							
1	800.000k	33.5	+10.8	+0.6			+0.0	44.9	69.6	-24.7	None
2	1.750M	27.0	+10.7	+0.7			+0.0	38.4	70.0	-31.6	None
3	21.250M	25.7	+10.1	+1.4			+0.0	37.2	70.0	-32.8	None
4	3.950M	24.3	+10.6	+0.8			+0.0	35.7	70.0	-34.3	None
5	9.000M	23.3	+11.0	+1.1			+0.0	35.4	70.0	-34.6	None
6	214.260k	44.6	+10.9	+0.4			+0.0	55.9	101.0	-45.1	None
7	370.000k	39.6	+10.8	+0.5			+0.0	50.9	96.2	-45.3	None
8	21.580k	50.2	+15.1	+0.3			+0.0	65.6	120.9	-55.3	None
9	113.030k	34.8	+11.2	+0.3			+0.0	46.3	106.5	-60.2	None
10	55.000k	30.0	+12.8	+0.3			+0.0	43.1	112.8	-69.7	None



Test Location: CKC Laboratories, Inc. • 22105 Wilson River Hwy • Tillamook, OR 97141 • 800 500-4EMC

Customer: **GTCO CalComp Corporation**
 Specification: **FCC15.249**
 Work Order #: **75747**
 Test Type: **Maximized Emissions**
 Equipment: **Drawing Board Personal**
 Manufacturer: **GTCO CalComp**
 Model: **36080-916**
 S/N: **none**

Date: 02/05/2001
 Time: 16:05:08
 Sequence#: 7
 Tested By: Mike Wilkinson

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Drawing Board Personal*	GTCO CalComp	36080-916	none
Power Supply 120V	Ault	P48091000C0X06	none

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

EUT is transmitting continuously at 916 MHz with modulation. The attached writing stylus is in contact with the writing surface. EUT was measured in 3 orthogonal planes as noted for each reading. The temperature was 70°F and the humidity was 40%. AC input was 120 V, 60 Hz. Frequency range investigated was 30 MHz to 10 GHz. No emissions were found in the restricted bands per 15.209.

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	Horn Cbl-2 dB	Amp-A Bilog dB	Cable 1.5 G dB	Cable 26.5 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	1833.105M	60.7	+27.2 +5.1	+0.0 +0.0	+0.0 +0.7	+0.6 -42.0	+0.0	52.3	54.0	-1.7	Horiz
									Side Position		
2	1833.114M	56.4	+27.2 +5.1	+0.0 +0.0	+0.0 +0.7	+0.6 -42.0	+0.0	48.0	54.0	-6.0	Vert
									Horizontal Position		
3	916.556M	85.2	+0.0 +0.0	-27.6 +22.2	+7.5 +0.0	+0.0 +0.0	+0.0	87.3	94.0	-6.7	Horiz
									Fundamental, Horizontal Position		
4	1833.105M	55.4	+27.2 +5.1	+0.0 +0.0	+0.0 +0.7	+0.6 -42.0	+0.0	47.0	54.0	-7.0	Vert
									Vertical Position		
5	1833.100M	55.3	+27.2 +5.1	+0.0 +0.0	+0.0 +0.7	+0.6 -42.0	+0.0	46.9	54.0	-7.1	Horiz
									Horizontal Position		
6	1833.105M	53.8	+27.2 +5.1	+0.0 +0.0	+0.0 +0.7	+0.6 -42.0	+0.0	45.4	54.0	-8.6	Horiz
									Vertical Position		
7	1833.105M	53.2	+27.2 +5.1	+0.0 +0.0	+0.0 +0.7	+0.6 -42.0	+0.0	44.8	54.0	-9.2	Vert
									Side Position		
8	916.555M	79.9	+0.0 +0.0	-27.6 +22.2	+7.5 +0.0	+0.0 +0.0	+0.0	82.0	94.0	-12.0	Vert
									Fundamental, Horizontal Position		
9	916.558M	78.7	+0.0 +0.0	-27.6 +22.2	+7.5 +0.0	+0.0 +0.0	+0.0	80.8	94.0	-13.2	Vert
									Fundamental, Vertical Position		
10	916.556M	78.2	+0.0 +0.0	-27.6 +22.2	+7.5 +0.0	+0.0 +0.0	+0.0	80.3	94.0	-13.7	Horiz
									Fundamental, Side Position		

11	5499.736M	27.8	+33.9	+0.0	+0.0	+4.7	+0.0	38.9	54.0	-15.1	Vert
			+10.5	+0.0	+1.0	-39.0			Horizontal Position		
12	6416.286M	30.0	+33.7	+0.0	+0.0	+1.6	+0.0	38.5	54.0	-15.5	Vert
			+11.4	+0.0	+0.7	-38.9			Horizontal Position		
13	916.559M	74.5	+0.0	-27.6	+7.5	+0.0	+0.0	76.6	94.0	-17.4	Horiz
			+0.0	+22.2	+0.0	+0.0			Fundamental, Vertical Position		
14	916.556M	73.7	+0.0	-27.6	+7.5	+0.0	+0.0	75.8	94.0	-18.2	Vert
			+0.0	+22.2	+0.0	+0.0			Fundamental, Side Position		
15	2749.655M	36.8	+29.1	+0.0	+0.0	+0.8	+0.0	32.6	54.0	-21.4	Horiz
			+6.6	+0.0	+0.3	-41.0			Side Position		
16	4582.986M	27.1	+32.3	+0.0	+0.0	+3.0	+0.0	32.5	54.0	-21.5	Vert
			+9.5	+0.0	+0.6	-40.0			Horizontal Position		
17	2749.650M	36.6	+29.1	+0.0	+0.0	+0.8	+0.0	32.4	54.0	-21.6	Horiz
			+6.6	+0.0	+0.3	-41.0			Horizontal Position		
18	2749.655M	35.7	+29.1	+0.0	+0.0	+0.8	+0.0	31.5	54.0	-22.5	Horiz
			+6.6	+0.0	+0.3	-41.0			Vertical Position		
19	3666.236M	28.6	+31.4	+0.0	+0.0	+1.5	+0.0	31.0	54.0	-23.0	Vert
			+8.1	+0.0	+0.4	-39.0			Horizontal Position		
20	2749.655M	35.1	+29.1	+0.0	+0.0	+0.8	+0.0	30.9	54.0	-23.1	Vert
			+6.6	+0.0	+0.3	-41.0			Side Position		
21	2749.655M	30.9	+29.1	+0.0	+0.0	+0.8	+0.0	26.7	54.0	-27.4	Vert
			+6.6	+0.0	+0.3	-41.0			Vertical Position		



Test Location: CKC Laboratories, Inc. • 22105 Wilson River Hwy • Tillamook, OR 97141 • 800 500-4EMC

Customer: **GTCO CalComp Corporation**

Specification: **FCC 15.207 COND**

Work Order #: **75747**

Date: 2/5/2001

Test Type: **Conducted Emissions**

Time: 16:14:30

Equipment: **Drawing Board Personal**

Sequence#: 8

Manufacturer: GTCO CalComp

Tested By: Mike Wilkinson

Model: 36080-916

S/N: none

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Drawing Board Personal*	GTCO CalComp	36080-916	none
Power Supply 120V	Ault	P48091000C0X06	none

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

EUT is transmitting continuously at 916 MHz with modulation. The attached writing stylus is in contact with the writing surface. EUT was in the horizontal position. The temperature was 70°F and the humidity was 40%. AC input was 120 V, 60 Hz. Frequency range investigated was 450 kHz to 30 MHz.

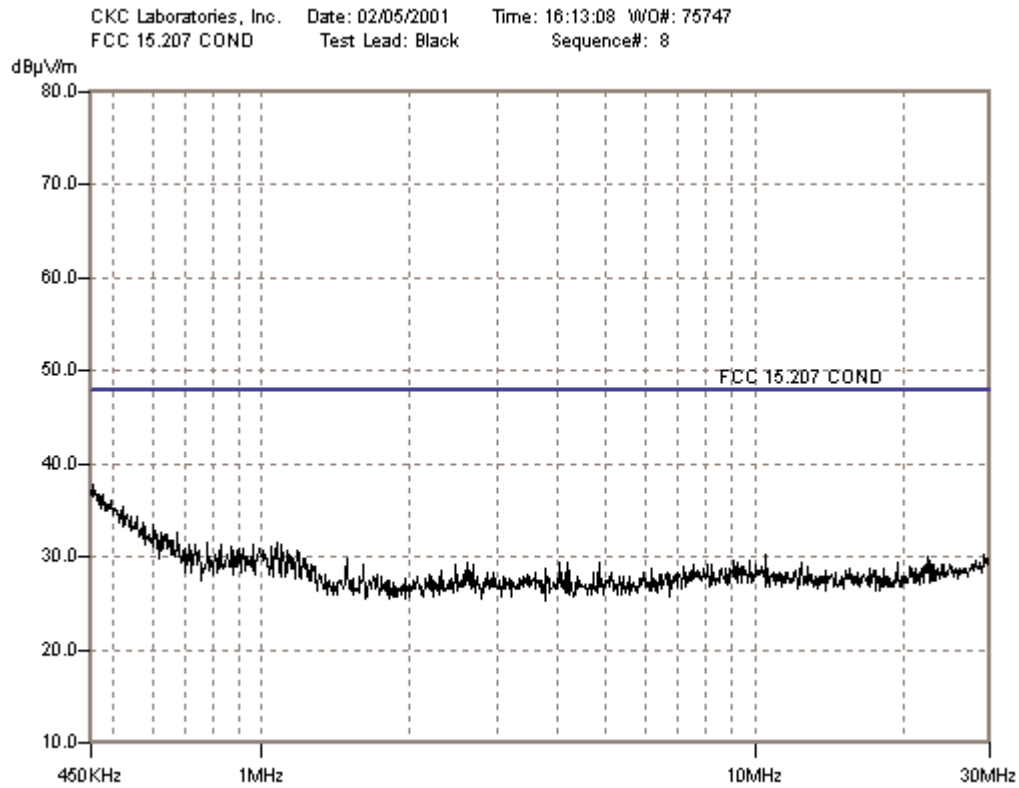
Measurement Data:

Reading listed by margin.

Test Lead: Black

#	Freq MHz	Rdng dBμV	T1 co		L14b		Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
			dB	dB	dB	dB					
1	454.179k	37.6	+0.0		+0.1		+0.0	37.7	48.0	-10.3	Black
2	460.448k	37.0	+0.0		+0.1		+0.0	37.1	48.0	-10.9	Black
3	475.074k	36.6	+0.0		+0.1		+0.0	36.7	48.0	-11.3	Black
4	493.880k	36.0	+0.0		+0.1		+0.0	36.1	48.0	-11.9	Black
5	483.432k	35.8	+0.0		+0.1		+0.0	35.9	48.0	-12.1	Black
6	521.043k	35.4	+0.0		+0.1		+0.0	35.5	48.0	-12.5	Black
7	506.417k	35.2	+0.0		+0.1		+0.0	35.3	48.0	-12.7	Black
8	531.491k	34.4	+0.0		+0.1		+0.0	34.5	48.0	-13.5	Black
9	556.565k	34.3	+0.0		+0.1		+0.0	34.4	48.0	-13.6	Black
10	544.028k	34.3	+0.0		+0.1		+0.0	34.4	48.0	-13.6	Black
11	525.222k	33.8	+0.0		+0.1		+0.0	33.9	48.0	-14.1	Black
12	575.370k	33.5	+0.1		+0.1		+0.0	33.7	48.0	-14.3	Black

13	602.534k	33.2	+0.1	+0.1	+0.0	33.4	48.0	-14.6	Black
14	569.102k	33.0	+0.0	+0.1	+0.0	33.1	48.0	-14.9	Black
15	675.666k	32.5	+0.1	+0.1	+0.0	32.7	48.0	-15.3	Black
16	625.518k	32.5	+0.1	+0.1	+0.0	32.7	48.0	-15.3	Black
17	638.055k	32.3	+0.1	+0.1	+0.0	32.5	48.0	-15.5	Black
18	646.413k	32.2	+0.1	+0.1	+0.0	32.4	48.0	-15.6	Black
19	610.892k	32.2	+0.1	+0.1	+0.0	32.4	48.0	-15.6	Black
20	589.997k	32.2	+0.1	+0.1	+0.0	32.4	48.0	-15.6	Black
21	629.697k	32.0	+0.1	+0.1	+0.0	32.2	48.0	-15.8	Black
22	617.160k	31.7	+0.1	+0.1	+0.0	31.9	48.0	-16.1	Black
23	598.355k	31.7	+0.1	+0.1	+0.0	31.9	48.0	-16.1	Black
24	658.950k	31.5	+0.1	+0.1	+0.0	31.7	48.0	-16.3	Black
25	1.075M	31.2	+0.3	+0.1	+0.0	31.6	48.0	-16.4	Black
26	778.052k	31.2	+0.2	+0.1	+0.0	31.5	48.0	-16.5	Black
27	736.262k	31.2	+0.1	+0.1	+0.0	31.4	48.0	-16.6	Black
28	711.188k	31.2	+0.1	+0.1	+0.0	31.4	48.0	-16.6	Black
29	957.749k	31.0	+0.2	+0.1	+0.0	31.3	48.0	-16.7	Black
30	828.200k	31.0	+0.2	+0.1	+0.0	31.3	48.0	-16.7	Black





Test Location: CKC Laboratories, Inc. • 22105 Wilson River Hwy • Tillamook, OR 97141 • 800 500-4EMC

Customer: **GTCO CalComp Corporation**
 Specification: **FCC 15.207 COND**
 Work Order #: **75747**
 Test Type: **Conducted Emissions**
 Equipment: **Drawing Board Personal**
 Manufacturer: **GTCO CalComp**
 Model: **36080-916**
 S/N: **none**

Date: 2/5/2001
 Time: 16:18:55
 Sequence#: 9
 Tested By: Mike Wilkinson

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Drawing Board Personal*	GTCO CalComp	36080-916	none
Power Supply 120V	Ault	P48091000C0X06	none

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

EUT is transmitting continuously at 916 MHz with modulation. The attached writing stylus is in contact with the writing surface. EUT was in the horizontal position. The temperature was 70°F and the humidity was 40%. AC input was 120 V, 60 Hz. Frequency range investigated was 450 kHz to 30 MHz.

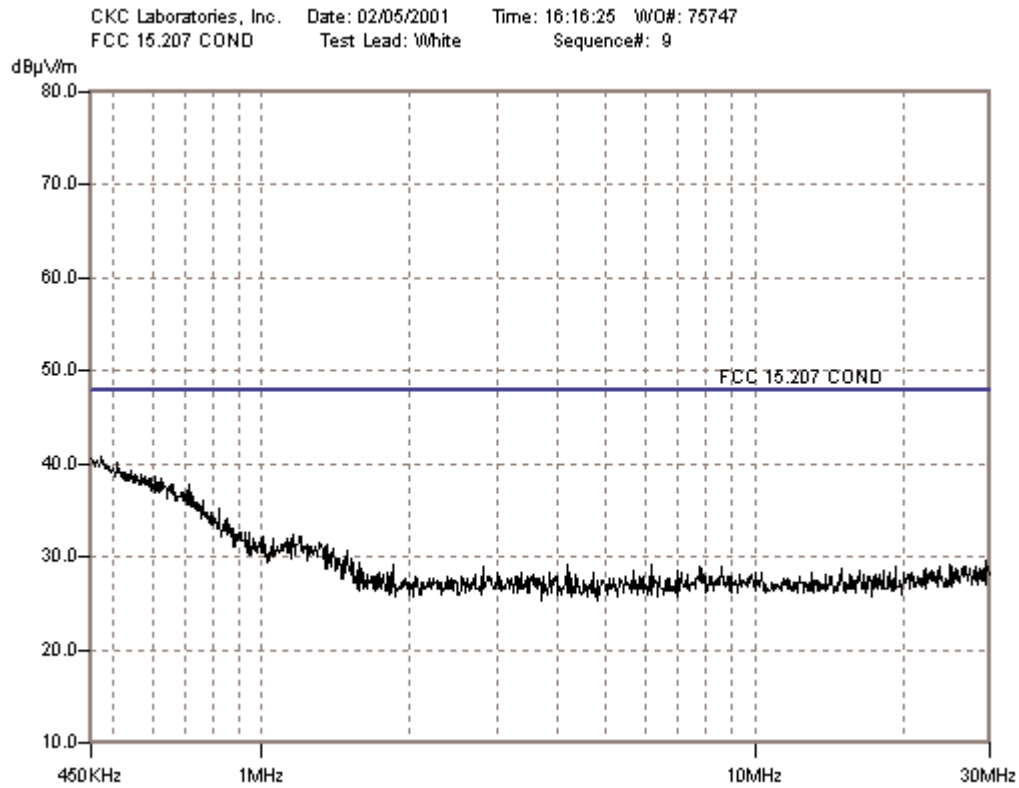
Measurement Data:

Reading listed by margin.

Test Lead: White

#	Freq MHz	Rdng dBμV	T1 co		L13w		Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
			dB	dB	dB	dB					
1	472.985k	40.7	+0.0	+0.1			+0.0	40.8	48.0	-7.2	White
2	452.090k	40.4	+0.0	+0.1			+0.0	40.5	48.0	-7.5	White
3	462.537k	40.3	+0.0	+0.1			+0.0	40.4	48.0	-7.6	White
4	510.596k	40.0	+0.0	+0.1			+0.0	40.1	48.0	-7.9	White
5	541.938k	39.3	+0.0	+0.1			+0.0	39.4	48.0	-8.6	White
6	527.312k	39.0	+0.0	+0.1			+0.0	39.1	48.0	-8.9	White
7	518.954k	39.0	+0.0	+0.1			+0.0	39.1	48.0	-8.9	White
8	552.386k	38.8	+0.0	+0.1			+0.0	38.9	48.0	-9.1	White
9	535.670k	38.8	+0.0	+0.1			+0.0	38.9	48.0	-9.1	White
10	571.191k	38.7	+0.0	+0.1			+0.0	38.8	48.0	-9.2	White
11	608.802k	38.4	+0.1	+0.1			+0.0	38.6	48.0	-9.4	White
12	581.639k	38.4	+0.1	+0.1			+0.0	38.6	48.0	-9.4	White

13	560.744k	38.5	+0.0	+0.1	+0.0	38.6	48.0	-9.4	White
14	598.355k	38.3	+0.1	+0.1	+0.0	38.5	48.0	-9.5	White
15	623.429k	38.2	+0.1	+0.1	+0.0	38.4	48.0	-9.6	White
16	594.176k	38.2	+0.1	+0.1	+0.0	38.4	48.0	-9.6	White
17	577.460k	38.2	+0.1	+0.1	+0.0	38.4	48.0	-9.6	White
18	585.818k	38.1	+0.1	+0.1	+0.0	38.3	48.0	-9.7	White
19	564.923k	38.2	+0.0	+0.1	+0.0	38.3	48.0	-9.7	White
20	631.787k	37.8	+0.1	+0.1	+0.0	38.0	48.0	-10.0	White
21	615.071k	37.8	+0.1	+0.1	+0.0	38.0	48.0	-10.0	White
22	715.367k	37.5	+0.1	+0.1	+0.0	37.7	48.0	-10.3	White
23	656.861k	37.5	+0.1	+0.1	+0.0	37.7	48.0	-10.3	White
24	704.919k	36.9	+0.1	+0.1	+0.0	37.1	48.0	-10.9	White
25	688.203k	36.8	+0.1	+0.1	+0.0	37.0	48.0	-11.0	White
26	694.472k	36.7	+0.1	+0.1	+0.0	36.9	48.0	-11.1	White
27	669.398k	36.7	+0.1	+0.1	+0.0	36.9	48.0	-11.1	White
28	700.740k	36.6	+0.1	+0.1	+0.0	36.8	48.0	-11.2	White
29	729.993k	36.3	+0.1	+0.1	+0.0	36.5	48.0	-11.5	White
30	759.246k	35.8	+0.1	+0.1	+0.0	36.0	48.0	-12.0	White





Test Location: CKC Laboratories, Inc. • 22105 Wilson River Hwy • Tillamook, Or 97141 • 503 842-5577

Customer: **GTCO CalComp Corporation**
 Specification: **FCC15.209**
 Work Order #: **75747**
 Test Type: **Maximized Emissions**
 Equipment: **Drawing Board Personal**
 Manufacturer: **GTCO CalComp**
 Model: **36080-916**
 S/N: **none**

Date: 05/01/2001
 Time: 11:42:32
 Sequence#: 39
 Tested By: Mike Wilkinson

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Drawing Board Personal*	GTCO CalComp	36080-916	none
Power Supply 120V	Ault	P48091000C0X06	none

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

EUT is in receive only mode at 916 MHz. The attached writing stylus is in contact with the writing surface. EUT was measured in the horizontal plane. The temperature was 67°F and the humidity was 47%. AC input was 120 V, 60 Hz. Frequency range investigated was 9 kHz to 30 MHz. All readings are ambient readings.

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	Mag L		Cable		Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
			dB	dB	dB	dB					
1	800.000k	35.0	+10.8	+0.6			+0.0	46.4	69.6	-23.2	None
2	1.750M	26.3	+10.7	+0.7			+0.0	37.7	70.0	-32.3	None
3	9.000M	23.6	+11.0	+1.1			+0.0	35.7	70.0	-34.3	None
4	3.950M	23.0	+10.6	+0.8			+0.0	34.4	70.0	-35.6	None
5	207.690k	46.4	+10.9	+0.4			+0.0	57.7	101.3	-43.6	None
6	370.000k	38.4	+10.8	+0.5			+0.0	49.7	96.2	-46.5	None
7	113.330k	37.8	+11.2	+0.3			+0.0	49.3	106.5	-57.2	None
8	9.000M	0.0	+11.0	+1.1			+0.0	12.1	70.0	-57.9	None
9	21.250M	0.0	+10.1	+1.4			+0.0	11.5	70.0	-58.5	None
10	55.520k	39.8	+12.8	+0.3			+0.0	52.9	112.7	-59.8	None
11	21.480k	45.3	+15.1	+0.3			+0.0	60.7	120.9	-60.2	None



Test Location: CKC Laboratories, Inc. • 22105 Wilson River Hwy • Tillamook, OR 97141 • 800 500-4EMC

Customer: **GTCO CalComp Corporation**

Specification: **FCC 15.109**

Work Order #: **75747**

Date: 02/14/2001

Test Type: **Maximized Emissions**

Time: 17:14:50

Equipment: **Drawing Board Personal**

Sequence#: 24

Manufacturer: GTCO CalComp

Tested By: Mike Wilkinson

Model: 36080-916

S/N: none

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Drawing Board Personal*	GTCO CalComp	36080-916	none

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

EUT is in receive only mode at 916 MHz. The attached stylus is in contact with the writing surface of the EUT. The temperature was 70°F and the humidity was 40%. EUT is power by 120 V, 60 Hz. Frequency range investigated was 30 MHz to 5 GHz.

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB μ V	Horn Cable dB	Amp-A Cable dB	Cable 26.5 dB	Bilog dB	Dist Table	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
1	36.090M	41.6	+0.0 +0.0	-27.2 +0.0	+1.6 +0.0	+15.8	+0.0	31.8	40.0	-8.2	Vert
2	916.000M	27.5	+0.0 +0.0	-27.6 +0.0	+7.5 +0.0	+23.3	+0.0	30.7	46.0	-15.3	Vert
3	516.800M	30.1	+0.0 +0.0	-27.8 +0.0	+5.7 +0.0	+18.1	+0.0	26.1	46.0	-19.9	Vert
4	262.308M	32.1	+0.0 +0.0	-26.4 +0.0	+4.1 +0.0	+12.6	+0.0	22.4	46.0	-23.6	Vert
5	260.630M	30.1	+0.0 +0.0	-26.5 +0.0	+4.1 +0.0	+12.6	+0.0	20.3	46.0	-25.7	Vert
6	1625.000M	28.4	+25.5 +0.6	+0.0 +4.7	+0.0 -42.0	+0.0	+0.0	17.2	54.0	-36.8	Vert
7	1625.000M	28.4	+25.5 +0.6	+0.0 +4.7	+0.0 -42.0	+0.0	+0.0	17.2	54.0	-36.8	Vert