ROGERS LABS, INC.

4405 West 259th Terrace
Louisburg, KS 66053
Phone / Fax (913) 837-3214

March 24, 1999

Joe Dichoso
Federal Communications Commision
Equipment Authorization Division, Application Processing Branch
7435 Oakland Mills Road
Columbia, MD 21046
Phone: (301) 362-3024
Fax: (301) 344-2050

Re: Kustom Signal Inc. Application for FCC ID IVQTAL, and reference number 6522.

Dear Joe:

In response to the fax dated March 12, 1999, reference number 6522 and the telephone conversations which followed, we respectfully submit the following information. Please review the data and process the certification. If there are any other, questions please contact us at your earliest opportunity.

Again, we relied upon Desmond Fraser at Rhein Tech Laboratories, Inc. for the measurements requested. As per our telephone conversation, we have made the conducted and radiated emissions measurements as requested. The data is included in the tables. The site correction factor was again dictated by Rhein Tech., Dan Baltzell performed the testing at Rhein Tech Laboratories, Inc.. Values for each component were not supplied with the data.

1.) As requested the antenna-conducted emissions were checked and data recorded in the following table.

TABLE 1
KUSTOM SIGNALS
RADIATED TEST: 3/22/99
WORK ORDER: 990169
MODEL: RADAR GUN
LIMIT/DISTANCE: FCC/3M
NAME: DAN BALTZELL
RADIATED EMISSION WITH 50 OHM LOAD TESTED AT METERS

EMISSION FREQUENCY (GHz)	TX ANTENNA POLARITY (H/V)	ANALYZER READING (dBμV)	SITE CORRECTION FACTOR (dB)	EMISSION LEVEL (dBμV)	DISTANCE (METERS)	Corrected for 3 (METERS) dBμV/m	COMMENTS
35.57914	V	59.6	40.2	99.8	3		CARRIER
71.0	V	16.2	43.3	59.5	1	49.0	AMBIENT NOISE FLOOR
106.5	V	27.8	47.0	74.8	1	64.3	AMBIENT NOISE FLOOR
142.0	V	22.9	47.9	70.8	1	60.3	AMBIENT NOISE FLOOR
177.5	V	21.7	51.2	72.9	1	62.4	AMBIENT NOISE FLOOR

March 24, 1999

Joe Dichoso
Federal Communications Commission
Equipment Authorization Division, Application Processing Branch
7435 Oakland Mills Road
Columbia, MD 21046
Telephone: (301) 362-3024
Fax: (301) 344-2050

Re: Kustom Signal Inc. Application for FCC ID IVQTAL, and reference number 6522.

2.) As requested the Radiated Emissions with the antenna loaded with a 50-ohm load were checked and the data recorded in the following table.

TABLE 2
KUSTOM SIGNALS
RADIATED TEST: 3/22/99
WORK ORDER: 990169
MODEL: RADAR GUN
LIMIT/DISTANCE:
NAME: DAN BALTZELL
DIRECT CONDUCTION POWER MEASUREMENT

EMISSION FREQUENCY (GHz)	ANALYZER READING (dBm)	FCC LIMIT (dBm)	FCC MARGIN (dBm)
35.54739	10.83		
71.042	-24.9		
106.615	-40.3		
151.221	-59.4		
175.270	-56.3		

Sincerely,

Scot Rogers

Scot Rogers

ROGERS LABS, INC.

4405 West 259th Terrace
Louisburg, KS 66053
Phone / Fax (913) 837-3214

March 12, 1999

Joe Dichoso
Federal Communications Commision
Equipment Authorization Division, Application Processing Branch
7435 Oakland Mills Road
Columbia, MD 21046
Phone: (301) 362-3024
Fax: (301) 344-2050

Re: Kustom Signal Inc. Application for FCC ID IVQTAL, and reference number 6402.

Dear Joe:

In response to the fax dated March 9, 1999, reference number 6402, we submit the following information. Please review the data and process the certification. If there are any other, questions please contact us at your earliest opportunity.

1.) The Site Correction Factor used in the equation is determined empirically, and is expressed in the following equation:

SCF (dB/m) = -PG(dB) + AF(dB/m) +CL(dB)
SCF = Site Correction Factor
PG = Pre-amplifier Gain — A Positive Value
AF = Antenna Factor — Value
CL = Cable Loss

Desmond Fraser performed testing for the harmonics at Rhein Tech Laboratories, Inc.. Values for each component were not supplied with the data.

2.) The horn antenna does not have uniform gain throughout the frequencies of measurement. However, the calculation with this value does depict a worst case condition. Theoretical values have been calculated and the data recalculated in the following table.

Frequency	Wavelength	Numeric	dB	CFS	V/m	Pt	E (V/m)	E (dBuV)	Distance
3.55E+10									
7.1E+10	1.66E-01	809.87	29.08	103.7	0.15	8.68E-06	6.89E-03	76.76	3
1.07E+11	1.11E-01	1822.20	32.61	98.6	0.09	1.33E-07	2.55E-03	68.14	1
1.42E+11	8.32E-02	3239.47	35.10	84.3	0.02	2.77E-09	3.69E-04	51.34	1
1.78E+11	6.65E-02	5061.68	37.04	91.1	0.04	8.48E-09	6.46E-04	56.21	1

Sincerely,

Scot Rogers

Scot Rogers

ROGERS Labs, Inc.

4405 W. 259TH Terrace, Louisburg, KS 66053 Phone/Fax: (913) 837-3214

Date: 3/12/99

To: FCC EQ Auth D.V. From: Scot Rogers

Attn: Joe Dichoso Fax #: 301 344-2050

A total of 2 pages (including this page) has been sent. Please advise if you do not receive all the pages.

Joe RE Reference # 6402
FCC ID IVQTAL
FCC Confirmation EA 92485.

Here is the data requested
Please accept the following page
in Response to the FAX Dated 3/9/99

Thank you for your time in this
matter.

Scot Rogers

ROGERS LABS, INC.

4405 West 259th Terrace
Louisburg, KS 66053
Phone / Fax (913) 837-3214

March 4, 1999

Joe Dichoso
Federal Communications Commision
Equipment Authorization Division, Application Processing Branch
7435 Oakland Mills Road
Columbia, MD 21046
Phone: (301) 362-3024
Fax: (301) 344-2050

Re: Kustom Signal Inc. Application for FCC ID IVQTAL, and reference number 5867.

Dear Joe:

In response to the fax dated February 2, 1999, reference number 5867, we submit the following information. Please review the data and continue to process the certification. If there are any other, questions please contact us at your earliest opportunity.

1.) The EUT has been tested for spurious emissions generated to the 5th harmonic. The data was referenced to a half wave dipole antenna by calculating the transmitter output power for each harmonic. Calculations are as follows:

CFS = FSM + Site correction
103.7 = 60.4 + 43.5
$Pt = d^2 E^2 / 30G$ and $E = \sqrt{(30PtG)/d}$ G=1.64 for dipole and 200 for hom ant. dBi ← UNIFORM GAIN?
$Pt = (9*0.153^2/30*200) = 3.51E^{-5}$
Then $E = \sqrt{(30*3.51E^{-5} *1.64)/3} = 0.014V/m = 82.8$ dBµV/m

Spurious Emissions up to the 5th Harmonic

Frequency (GHz)	Ant. Polarity (H/V)	FSM (dBµV)	Site Correction (dB)	CFS dBµV/m	Referenced To Dipole dBµV/m	FCC Limit	FCC Margin
71.056	V	60.4	43.5	103.7	82.8	84.3	- 1.5
106.584	V	51.6	47.0	98.6	77.7	84.3	- 6.6
121.034	H	35.6	52.1	83.5	62.6	84.3	- 21.7
141.154	H	35.0	53.5	84.3	63.4	84.3	- 20.9
176.363	H	39.9	55.4	91.1	70.2	84.3	- 14.1

OK

2.) The frequency tolerance requested will be 2800 ppm.

Sincerely,

Scott D Rogers ?

Scot Rogers

Parameters

ROGERS Labs, Inc.

4405 W. 259TH Terrace, Louisburg, KS 66053 Phone/Fax: (913) 837-3214

Date: 3/4/99

To: FCC EQ Auth Div. From: Scot Rogers

Attn: Joe Dichoso Fax #: 301 344-2050

A total of 2 pages (including this page) has been sent. Please advise if you do not receive all the pages.

RE. Reference # 5867

FCC ID IVQTAL

FCC Confirmation # EA 92485

Joe Sorry for the delay in Responding to the request. Please accept the following page in Response to the FAX.

Please Call 913 837-3214 Scot Rogers if you have any Questions

Thank you for your Time and Help in this Matter

Scot Rogers