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TEST REPORT

FCC PART 15

for

FCC ID: AXI11374620

Applicant	VERTEX STANDARD USA, INC.	
Address	8000 WEST SUNRISE BLVD. FT. LAUDERDALE FL 33322 USA	
Model Number	EVX-261-G6-5, S/NO 2B6C800038	
Product Description	403-470 MHZ 5 WATT PORTABLE TRANSCEIVER	
Date Sample Received	4/20/2016	
Date Tested	5/06/2016	
Tested By	Cory Leverett	
Approved By	Tim Royer	
Test Results	<input checked="" type="checkbox"/> PASS	<input type="checkbox"/> FAIL

Report Number	Version Number	Description	Issue Date
664UT16TestReport	Rev1	Initial Issue	5/6/2016

THE ATTACHED REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL
WITHOUT THE WRITTEN APPROVAL OF TIMCO ENGINEERING, INC.

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GENERAL REMARKS

The attached report shall not be reproduced except in full without the written permission of Timco Engineering Inc.

The test results only relate to the item tested.

SUMMARY OF TESTING RESULTS

The device under test does:

- Fulfill the general approval requirements as identified in this test report and was selected by the customer.
- Not fulfill the general approval requirements as identified in this test report

ATTESTATIONS

This equipment was received without any visible damage and in good working order and has been tested in accordance with the standards identified in this test report. To the best of my knowledge and belief, these tests were performed using the measurement procedures described in this report.

All instrumentation and accessories used to test products for compliance to the indicated standards are calibrated regularly in accordance with ISO 17025: 2005 requirements.

I attest that the necessary measurements were made at:

Timco Engineering Inc.
849 NW State Road 45
Newberry, FL 32669

Authorized Signatory Name:



A red circular stamp with the text "TIMCO ENGINEERING INC." around the perimeter and "FLORIDA" in the center.

Cory Leverett
Project Manager

Date: 5/6/2016

GENERAL INFORMATION

The test results relate only to the items tested.	
EUT Description	403-470 MHZ 5 WATT PORTABLE TRANSCEIVER
FCC ID	AXI11374620
Model Number	EVX-261-G6-5, S/NO 2B6C800038
Lowest Internal Frequency	VCO1 (Voltage Controled Crystal Oscillator)
Highest Tuned Frequency	19.2 MHz
I/O Port Type	1/8" Mini Microphone jack, configurable to USB interface for computer using FIF-12 Adapter and CT106 cable
EUT Power Source	<input checked="" type="checkbox"/> 110–120Vac/50– 60Hz (While in Charger)
	<input type="checkbox"/> 12.6 VDC Nominal
	<input type="checkbox"/> Battery Operated Exclusively
Test Item	<input type="checkbox"/> Prototype
	<input type="checkbox"/> Pre-Production
	<input checked="" type="checkbox"/> Production
Environmental Condition in the laboratory	Temperature: 24-26°C Relative humidity: 50-65% Barometric Pressure: 29.91 in

PERIPHERALS & CABLES USED FOR TESTING

Description	Type / Model	Connector	Length
USB Programming Interface	FIF-12	USB B to 8 Pin DIN	NA
Microphone jack to DIN cable	CT106	1/8" Mini Jack to 8-Pin Din	64 cm
USB Cable	Shielded Ferrite on A side	USB A to USB B	182 cm
Desktop Charger	CD-58	Barrel Jack	NA
I.T.E. Power Supply	PA-55B	NEMA-515 Ungrounded to Barrel Jack	153 cm

TEST INFORMATION

Regulatory Standard	CFR Title 47 FCC Rule part 15B § 15.109, 15.107
Test Procedures	FCC Part 15.31, 15.33, 15.35 ANSI C63.4 – 2014
Operational Modes	The EUT is configured as a computer peripheral through a USB cable connected to a partially configured host PC. A simulated firmware update to the EUT was applied to continuously transfer data between the EUT and the host PC.
Setup	The EUT was configured as a computer peripheral through a supplied USB cable, the setup used was a tabletop arrangement for IT equipment as specified in the standard
Modifications required for Testing	None
Deviation from the standard/procedure	No deviation
Host PC Model	Lenovo G580 Laptop using I.T.E. supply PA-1650-56LC, This PC was a Host PC not under test using the minimum peripheral configuration required by the standard. The EUT does not get power from the host PC and is configured in a separate desktop charger cradle with I.T.E. supply during testing.

RESULTS SUMMARY

Requirement	Frequency MHz	Level (dB _u V/m)		RESULTS
15.109 Radiated Emissions	30 – 88	40.0		Pass
	80 – 216	43.0		Pass
	216 – 960	46.0		Pass
	Above 960	54.0		Pass
15.107 AC Powerline Conducted	Frequency MHz	Quasi Peak Limits (dB _u V)	Average Limits (dB _u V)	RESULTS
	0.15 – 0.5	66 – 56*	56 – 46 *	Pass
	0.5 – 5.0	56	46	Pass
	5.0 – 30	60	50	Pass

*Decrease with logarithm of frequency

RADIATED SPURIOUS EMISSIONS

Rule Part No.: FCC Part 15 Subpart B

Requirements: FCC Part 15.109(a) Radiated Emission Limit

Class B Field Strength Limits @ 3 Meters	
Frequency (MHz)	Level (dBuV/m)
30 – 88	40.0
80 – 216	43.5
216 – 960	46.0
Above 960	54.0

Procedure: FCC Part 15.33(b)(1) Frequency range of radiated measurements

FCC Part 15.35(a) Measurement detector functions and bandwidths

ANSI C63.4 Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment 9 kHz to 40 GHz

§ 11.2 Operating conditions

§ 11.3 Peripherals / Accessories

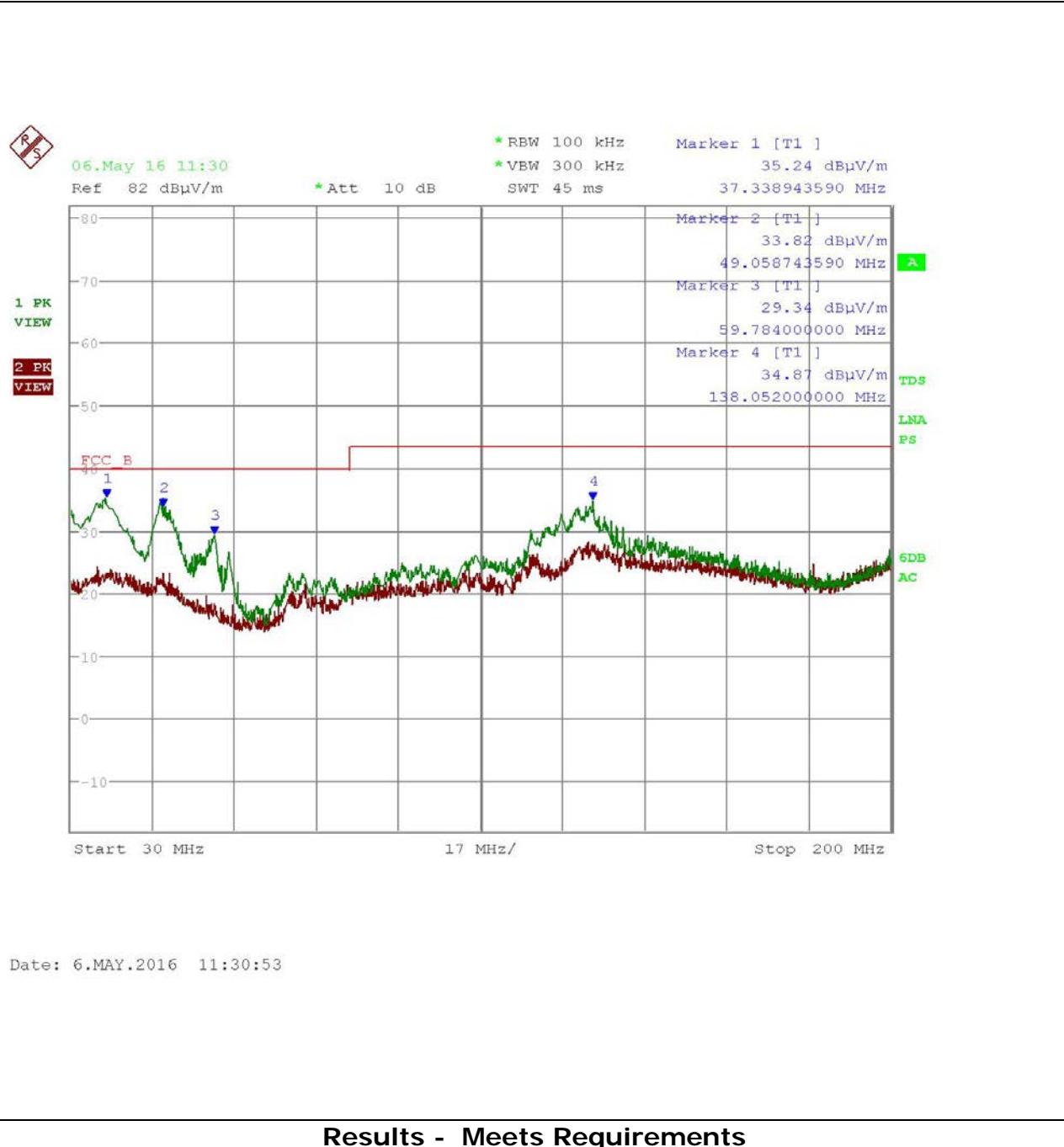
§ 11.5 Tabletop equipment arrangement

§ 11.9 Radiated emission measurements

Configuration: The EUT is configured as a computer peripheral through a USB cable connected to a partially configured host PC. A simulated firmware update to the EUT was applied to continuously transfer data between the EUT and the host PC.

RADIATED SPURIOUS EMISSIONS

30–200 MHZ PEAK PLOT



Date: 6.MAY.2016 11:30:53

Results - Meets Requirements

Ant Polarity: T1 (Green) =Vertical, T2 (Red) =Horizontal

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RADIATED SPURIOUS EMISSIONS
200-1000 MHZ PEAK PLOT


06.May 16 11:41

 Ref 82 dB μ V/m

* Att 10 dB

* RBW 100 kHz

* VBW 300 kHz

SWT 195 ms

Marker 1 [T2]

 29.62 dB μ V/m

280.000000000 MHz

Marker 2 [T2]

 31.40 dB μ V/m

402.880000000 MHz

Marker 3 [T1]

 31.69 dB μ V/m

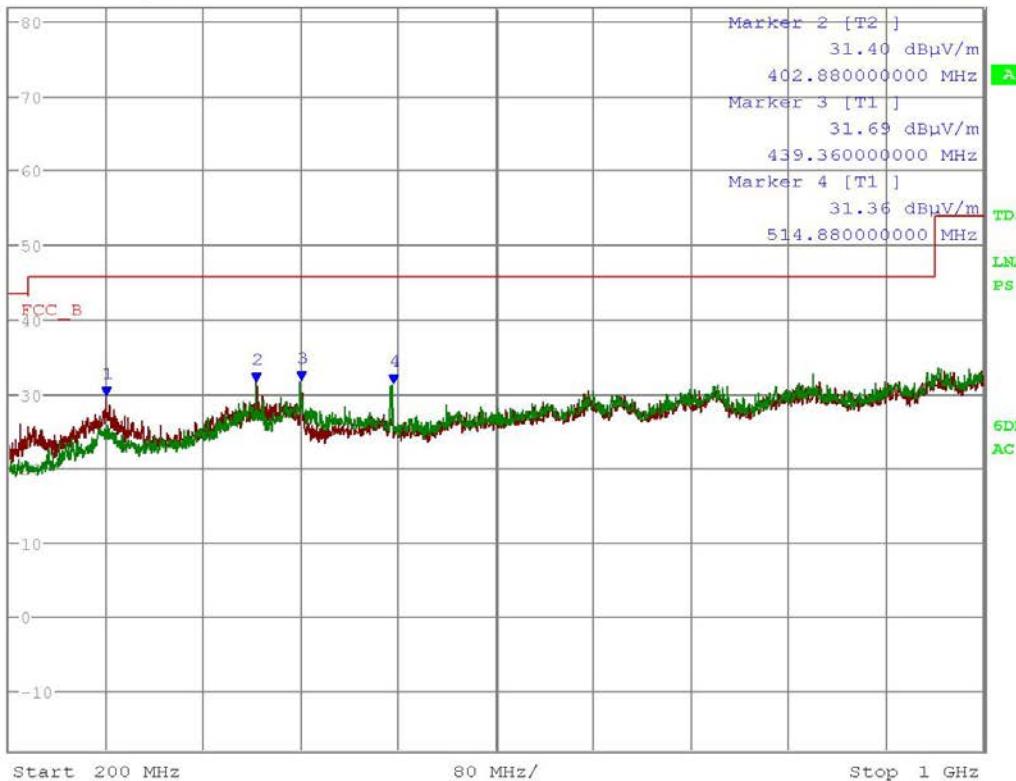
439.360000000 MHz

Marker 4 [T1]

 31.36 dB μ V/m

514.880000000 MHz

 1 PK
MACH

 2 PK
VIEW


Date: 6.MAY.2016 11:41:13

Results - Meets Requirements

Ant Polarity: T1 (Green) =Vertical, T2 (Red) =Horizontal

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POWERLINE CONDUCTED INTERFERENCE

Rules Part No.: FCC Subpart B

Requirements: FCC 15.107 (a) Conducted Limits

Frequency (MHz)	Quasi Peak Limits (dB μ V)	Average Limits (dB μ V)
0.15 – 0.5	66 – 56 *	56 – 46 *
0.5 – 5.0	56	46
5.0 – 30	60	50

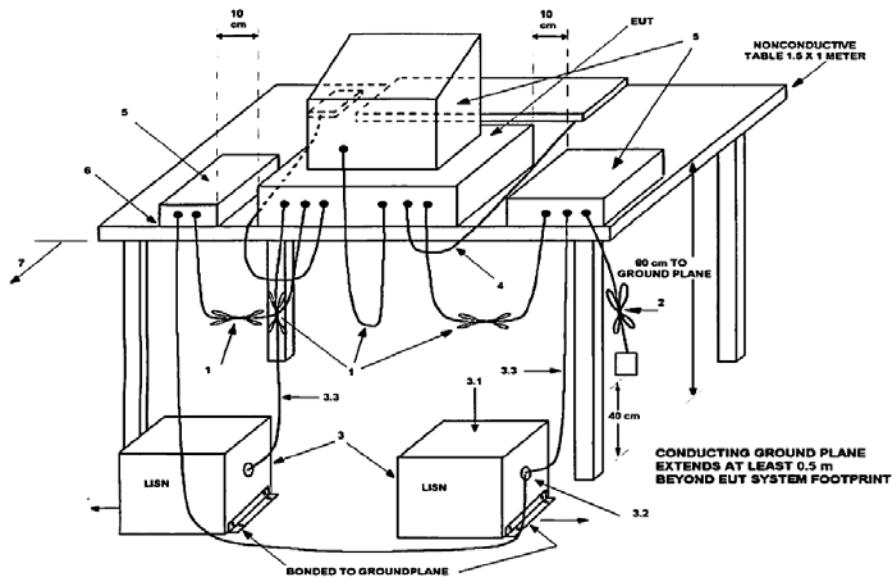
* Decrease with logarithm of frequency

Procedure: ANSI C63.4 Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment 9 kHz to 40 GHz

- § 11.2 Operating conditions
- § 11.3 Peripherals / Accessories
- § 11.5 Tabletop equipment arrangement
- § 11.8 AC power-line conducted emission measurements

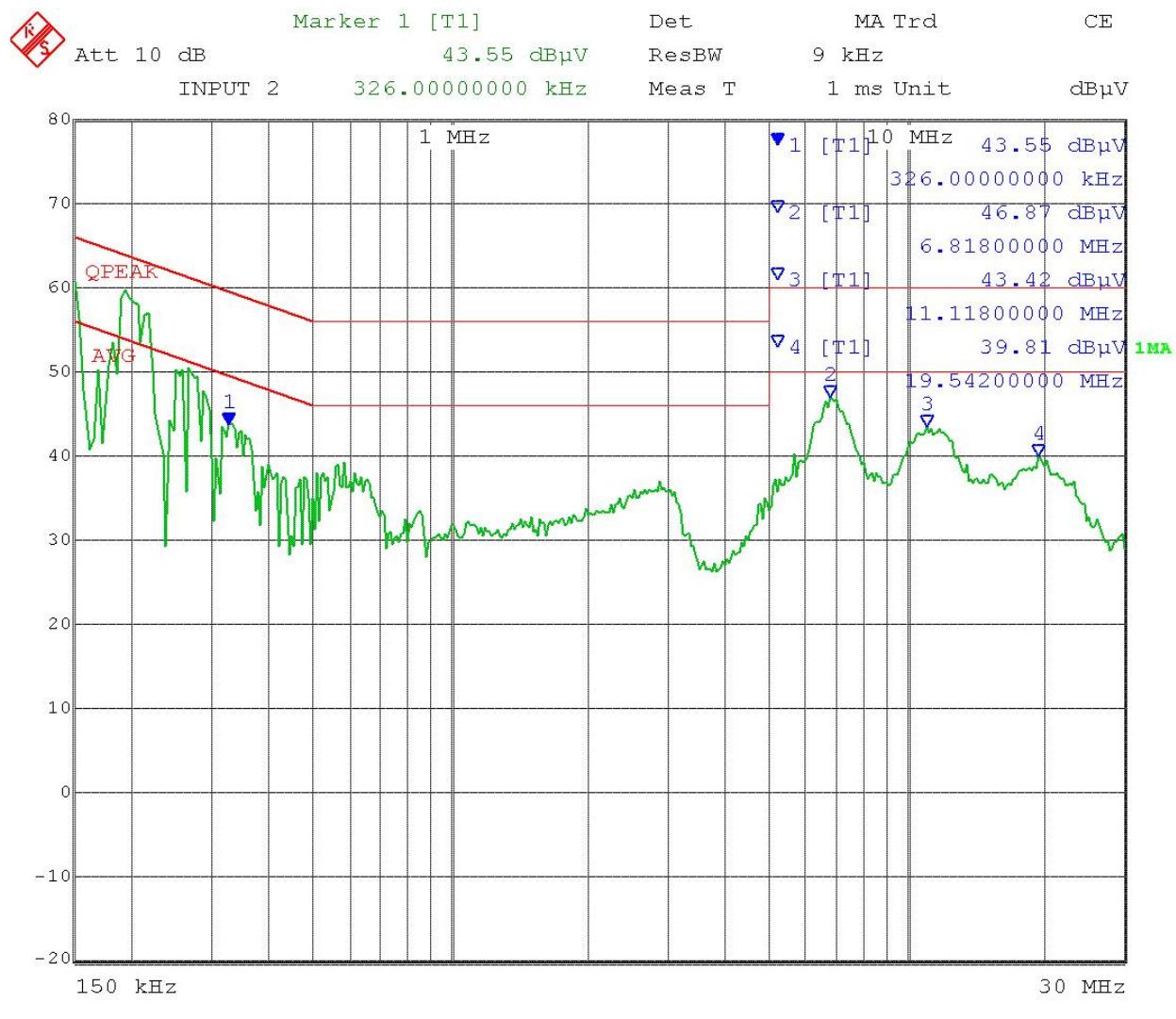
Configuration: The EUT is configured as a computer peripheral through a USB cable connected to a partially configured host PC. A firmware update to the EUT was used to transfer data between the EUT and the host PC

Setup:



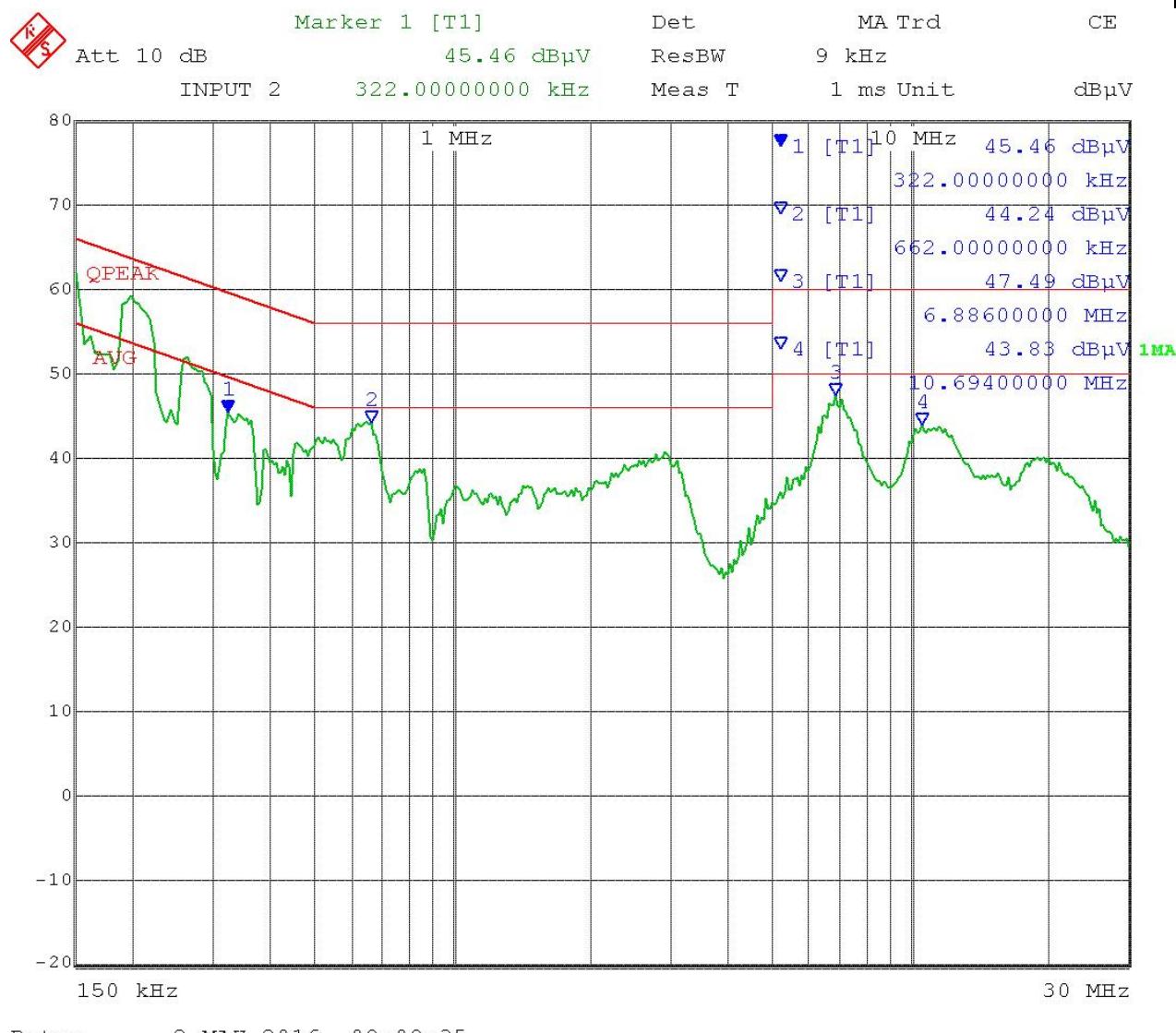
POWER LINE CONDUCTED INTERFERENCE

POWERLINE 1 PEAK PLOT



Date: 2.MAY.2016 08:59:20

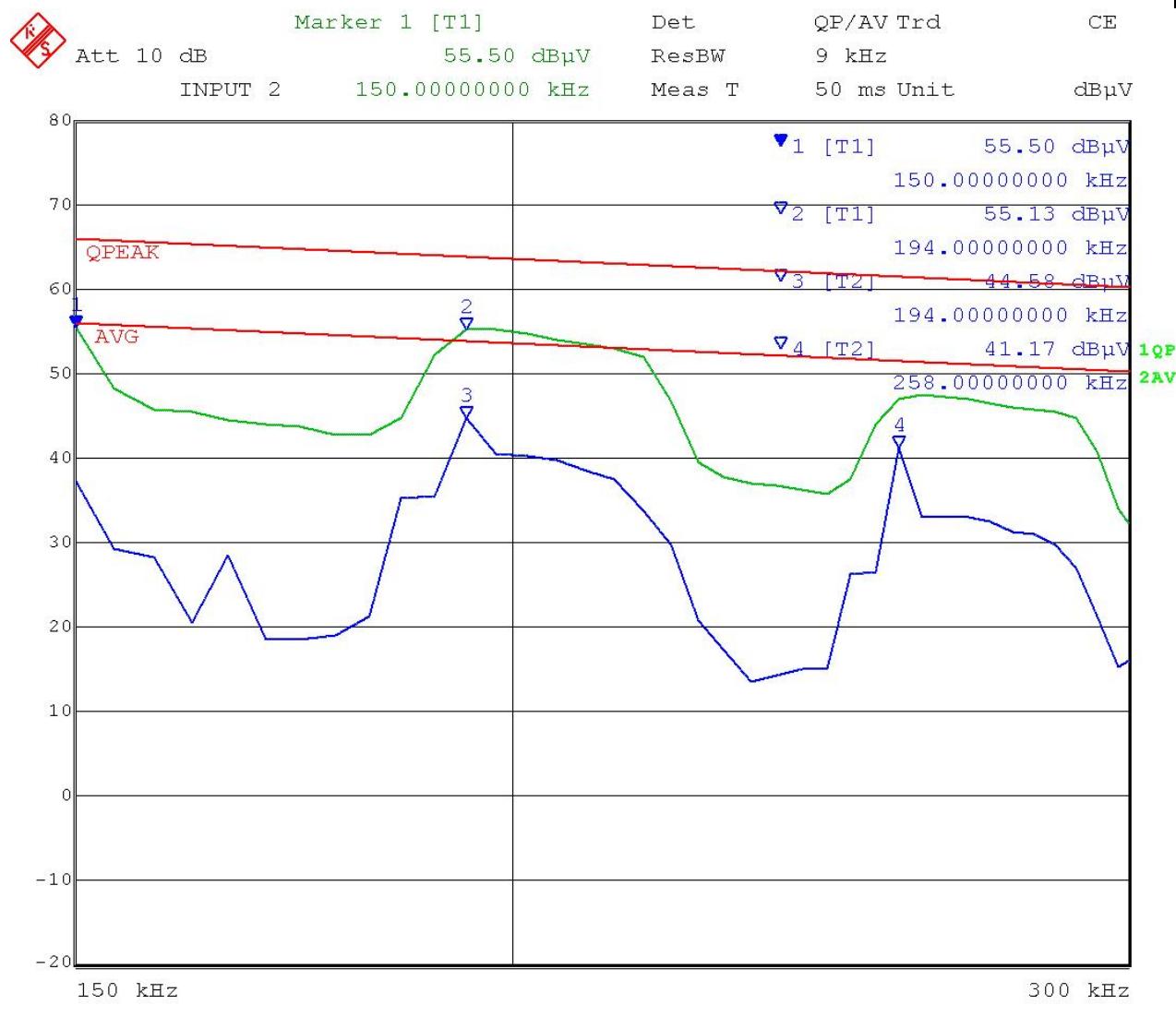
Results - Meets Requirements

POWER LINE CONDUCTED INTERFERENCE
POWERLINE 2 PEAK PLOT

Results - Meets Requirements

POWER LINE CONDUCTED INTERFERENCE

POWERLINE 1 QUASI-PEAK & AVERAGE PLOT



POWER LINE CONDUCTED INTERFERENCE
POWERLINE 2 QUASI-PEAK & AVERAGE PLOT

Results - Meets Requirements

MEASUREMENT UNCERTAINTY

State of the measurement uncertainty

The data and results referenced in this document are true and accurate. The measurement uncertainty was calculated for all measurements listed in this test report according To CISPR 16 – 4 or ENTR 100-028 Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: "Uncertainty in EMC Measurements" and is documented in the Timco Engineering, Inc. quality system according to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device. Hereafter the best measurement capability for Timco Engineering, Inc. is reported:

Test Items	Measurement Uncertainty	Notes
Radiated Emissions to 6.0GHz	± 4.4dB	(1)
Power line conducted emissions	± 3.9dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=1.96$.

TEST EQUIPMENT LIST

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
Antenna: Biconnical 1096	Eaton	94455-1	1096	07/14/15	07/14/17
Antenna: Log-Periodic 1122	Electro-Metrics	LPA-25	1122	07/14/15	07/14/17
LISN (Primary)	Electro-Metrics	EM-7820	2682	05/08/15	05/08/17
CHAMBER	Panashield	3M	N/A	01/05/16	12/31/17
EMI Test Receiver R & S ESIB 40	Rohde & Schwarz	ESIB 40	100274	08/12/14	08/12/16
Software: Field Strength Program	Timco	N/A	Version 4.0	NA	NA
LISN (Secondary/Auxiliary)	Electro-Metrics	EM-7821	101	10/29/15	10/29/17
EMI Test Receiver R & S ESU 40	Rohde & Schwarz	ESU 40	100320	04/01/16	04/01/18
LISN CABLE	TIMCO LISN	17	LISN1	01/05/16	01/04/17
Coaxial Cable - Chamber 3 cable set	Micro-Coax	CHAM3PC	Chamber 3 cable set	12/05/15	12/05/17

***EMI RECEIVER SOFTWARE VERSION**

The receiver firmware used was version 4.43 Service Pack 3