COMPLIANCE TEST REPORT		FCC PART 95D RSS-236	EMC/RF MEASUREMENT REPORT
Test Lab Information	Name	CELLTECH LABS INCORPORATED	
	Address	21-364 Lougheed Road, Kelowna, British Columbia V1X 7R8 Canada	
Test Lab Accreditation(s)	A2LA	ISO 17025:2005 (A2LA Test Lab Certificate No. 2470.01)	
Test Site Registration No.	FCC	Accredited Site	
	IC	3874A-1	
Applicant Information	Name	UNIDEN AMERICA CORPORATION	
	Address	6225 North State Highway 161, Suite 300 Irving, Texas 75038	
Measurement Standard(s) & Procedure(s) Applied	FCC IC.	47 CFR Part 95 Subpart D RSS-236	
	ANSI	TIA/EIA-382-A	C63.4-2014
Device Classification(s)	FCC/IC	Licensed Non-Broadcast Station Transmitter (TNB)	
Device RF Exposure Category	FCC	Mobile	
Device Identifier(s)	FCC ID: IC	AMWUT407 513C-UT407	
Application Type	FCC/IC	Certification	
Device Under Test (DUT)	Mobile CB Radio Transceiver		
Device Model	PC78LTD		
Test Sample Serial No.(s)	TA Sample - Identical Prototype		
Transmit Frequency Range(s)	26.965 - 27.405 MHz		
Channels	1-40		
Rated MAX. TX Power	4.0W AM,		
Modulation Type(s)	AM.		
Emission Designator(s)	6K00A3E		
Antenna	External Whip, 0dBi nominal (3dBi maximum).		
Power Source(s) Tested	DC Power Supply (13.8 V)		

This device has demonstrated compliance with the applicable technical standards indicated in the measurement report and was tested in accordance with the measurement procedures specified in FCC 47 CFR Rule Parts 2, Part 15B and Part 95D,RSS-236, RSS-GEN ANSI TIA/EIA-382-A and ANSI C63.4-2014.

I attest to the accuracy of data. All measurements were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

The results and statements contained in this report pertain only to the device(s) evaluated.

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Test Report Approved By		Art Voss	20 August 2015	Celltech Labs Inc.

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TEST SUMMARY

Referenced Standard(s):		FCC CFR Title 47 Parts 2, 95(D), 15(B)			
Appendix	**Description of Test**	**Procedure Reference**	**Limit Reference**	**Date of compliance test verification**	**Result**
A	Conducted Power	ANSI/TIA/EIA-382-A	§2.1033, 95 RSS-236	20 July 2015	Pass
B	Modulation	ANSI/TIA/EIA-382-A	§2.1047, 95 RSS-236	21 July 2015	Pass
C	Audio Frequency Response	ANSI/TIA/EIA-382-A	§2.1047, 95 RSS-236	21 July 2015	Pass
D	Occupied Bandwidth and Emission Mask	ANSI/TIA/EIA-382-A	§2.1049, 95 RSS-236	20 July 2015	Pass
E	Conducted TX Spurious Emissions	ANSI/TIA/EIA-382-A	§2.1053, 95 RSS-236	23 July 2015	Pass
F	Radiated TX Spurious Emissions	ANSI/TIA/EIA-382-A	§2.1053, 95 RSS-236	23 July 2015	Pass
	Radiated Spurious Emissions	ANSI C63.4:2003	§15 Subpart B ICES-003	23 July 2015	Pass
G	Frequency Stability	ANSI/TIA/EIA-382-A	§2.1055, 95 RSS-236	28 July 2015	Pass

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1.0 REVISION LOG

Revision	Description	Implemented By	Implementation Date
1.0	1st Release	Art Voss	10 August 2015
1.1	2nd Release Corrections per TCB dated 18-Aug	Art Voss	20 August 2015

Test Report Prepared By	Date	QA Review By	Date
Art Voss	10 August 2015	Art Voss	10 August 2015

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2.0 SCOPE

This report outlines the measurements made and results collected during electromagnetic emissions testing of the Uniden America Corporation CB Radio Transceiver FCC/IC: AMWUT407/513C-UT407. The measurement results were applied against the applicable EMC requirements and limits outlined in the technical rules and regulations set forth in the Federal Communication's Commission Code of Federal Regulations Title 47 Part 2, Part 95 Subpart D and RSS-236.

3.0 REFERENCES

3.1 Normative References

ANSI/ISO 17025:2005 General Requirements for competence of testing and calibration laboratories

IEEE/ANSI C63.4:2003 Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

ANSI/TIA/EIA-382-A Citizens Band Radio Service Amplitude Modulated (AM) Transceivers Operating in the 27 MHz Band

CFR Title 47 Part 2 Code of Federal Regulations
Title 47: Telecommunication
Part 2: Frequency Allocations and Radio Treaty Matters; General Rules and Regulations

CFR Title 47 Part 95 Code of Federal Regulations
Title 47: Telecommunication
Part 95: Personal Radio Services
Subpart D - Citizens Band (CB) Radio Service

Industry Canada RSS-236, RSS-GEN

4.0 PASS/FAIL CRITERIA

Unless otherwise noted in the Appendices, the pass/fail criteria are the limits set forth in the reference standards. The DUT is considered to have passed the requirements if the data collected during the described measurement procedure is no greater than the specified limits as defined. The pass/fail statements made in this report only apply to the unit tested.

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5.0 FACILITIES AND ACCREDITATIONS

The facilities used in collecting the test results outlined in this report are located at 21-364 Lougheed Road, Kelowna, British Columbia, Canada V1X 7R8. The radiated emissions site conforms to the requirements set forth in ANSI C63.4 and is filed and listed with Industry Canada under File Number IC 3874A-1. Celltech test site is listed with the FCC as an accredited test facility.

6.0 GENERAL INFORMATION

6.1 DUT Description & Specifications

DEVICE TYPE:	Mobile CB Radio Transceiver	
DEVICE MODEL(S):	PC78LTD	
TEST SAMPLE SERIAL NO.:	T/A Sample - Identical Prototype	
DEVICE IDENTIFIER(S):	**FCC ID:** **IC**	AMWUT407 513C-UT407
TRANSMIT FREQUENCY RANGE:	26.965 - 27.405 MHz (Chan. 1-40)	
NO. OF CHANNELS:	40	
MANUF. MAX. RATED OUTPUT POWER:	4.0W AM	
ANTENNA GAIN:	External Whip, 0dBi nominal (3dBi maximum).	
MODULATION:	AM	
EMISSION DESIGNATOR:	6k00A3E Bn = 2M M = 3000 Bn = 6000	
DUT POWER SOURCE:	12 VDC Battery, DC Power Supply (13.8 V)	
TYPE OF EQUIPMENT:	Licensed Non-Broadcast Station Transmitter (TNB)	
DEVIATION(S) FROM STANDARD/PROCEDURE:	None	
MODIFICATION OF DUT:	None	
APPLICABLE STANDARDS:	EIA/TIA-382-A, FCC CFR 47 Part 95, RSS-GEN, RSS-236	

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APPENDIX A - RF Conducted Output Power Measurement

References	
Normative Reference Standard	FCC CFR 47 §2.1046, §95D, RSS-236

Limits	
§95.639 RSS-236, 5.2	4.0W, 36dBm

Environmental Conditions	
Temperature	25 ºC
Humidity	45 +/- 10 %
Barometric Pressure	101 +/- 3 kPa

Asset number	Manufacturer	Model	Description	Last cal / Cal due
00110	Gigatronics	8652A	Power Meter	17-Feb-14 /17-Feb-16
00248	Gigatronics	80334A	Power Sensor	17-Feb-14 /17-Feb-16

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Conducted Power Measurement

Method of Measurement: The RF power is measured with a 50 ohm resistive watt-meter connected at the EUT's RF output connector. Nominimal DC power of 13.8VDC is applied.

Measured Output Power (AM - Channel 1):	3.71W (35.69 dBm)
Manufacturer's Rated Output Power (AM):	4.00W (36.02 dBm)
Margin:	-0.29W (-0.33dB)
FCC CFR 47 §2.1033(c)(8): Power to Transmitter:	(13.8VDC)(1.28A) = 17.7W
Result:	**Complies**

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APPENDIX B - Modulation Characteristics (Modulation Limiting)

References	
Normative Reference Standard	FCC CFR 47 §2.1047, Part 95D, 95.637, RSS-236, 5.3.2

Limits	
FCC §2.1047	Modulation can not exceed 100% - Modulation Limiting.

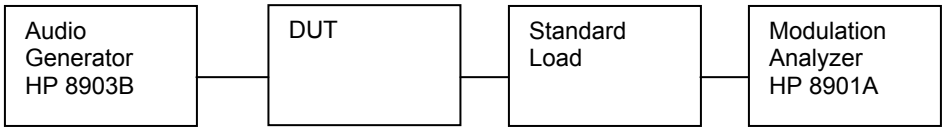
Environmental Conditions	
Temperature	25 +/- 5 ºC
Humidity	40 +/- 10 %
Barometric Pressure	101 +/- 3 kPa

Equipment List

Asset number	Manufacturer	Model	Description	Last cal / Cal due
00028	HP	8901A	Modulation Analyzer	22-Dec-14 / 22-Dec-16
00027	HP	8903B	Audio Generator/Analyzer	22-Dec-14 / 22-Dec-16

Setup Drawing

Figure 1- Setup Drawing – Modulation Characteristics



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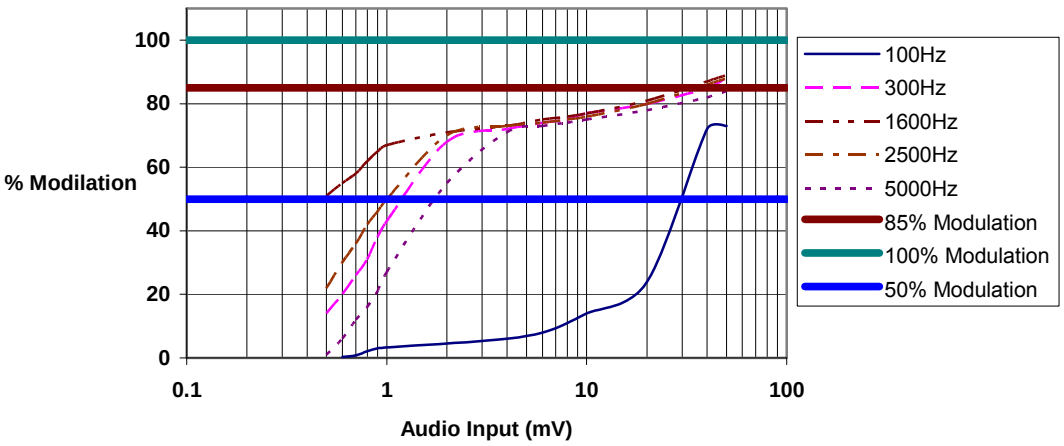
Modulation Response



Measured Modulation Response

Freq (kHz)	0.5	0.6	0.7	0.8	0.9	1	2	4	6	8	10	20	40	50
100		0.3	0.8	2.1	3.0	3.3	4.5	6.0	8.0	11.0	14.0	24.0	72.0	73.0
300	14.0	20.0	26.0	31.0	38.0	43.0	68.0	72.0	74.0	75.0	77.0	80.0	85.0	88.0
1600	51.0	55.0	58.0	62.0	65.0	67.0	71.0	73.0	75.0	76.0	77.0	81.0	87.0	89.0
2500	22.0	30.0	36.0	42.0	46.0	50.0	70.0	73.0	74.0	75.0	76.0	80.0	86.0	88.0
5000	1.0	6.0	12.0	16.0	21.0	27.0	55.0	71.0	73.0	74.0	75.0	78.0	82.0	84.0

Audio Frequency @ Maximum Modulation Index:	1600Hz
Audio Input @ 50% Modulation Index:	0.50mV
Audio Input @ +40dB:	50mV
Maximum Measured Modulation Index:	89%
Result:	Complies

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APPENDIX C - Modulation Characteristics (Audio Frequency)

References	
Normative Reference Standard	FCC CFR 47 §2.1047, TIA/EIA-382-A, Para 25.

Limits	
FCC §2.1047	a) *Voice modulated communication equipment.* A curve or equivalent data showing the frequency response of the audio modulating circuit over a range of 100 to 5000 Hz shall be submitted.

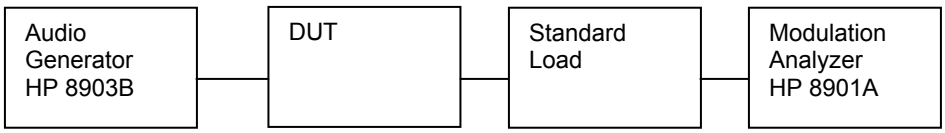
Environmental Conditions	
Temperature	25 +/- 5 ºC
Humidity	40 +/- 10 %
Barometric Pressure	101 +/- 3 kPa

Equipment List

Asset number	Manufacturer	Model	Description	Last cal / Cal due
00028	HP	8901A	Modulation Analyzer	22-Dec-14 / 22-Dec-16
00027	HP	8903B	Audio Generator/Analyzer	22-Dec-14 / 22-Dec-16

Setup Drawing

Figure 2 - Setup Drawing – Audio Frequency Response



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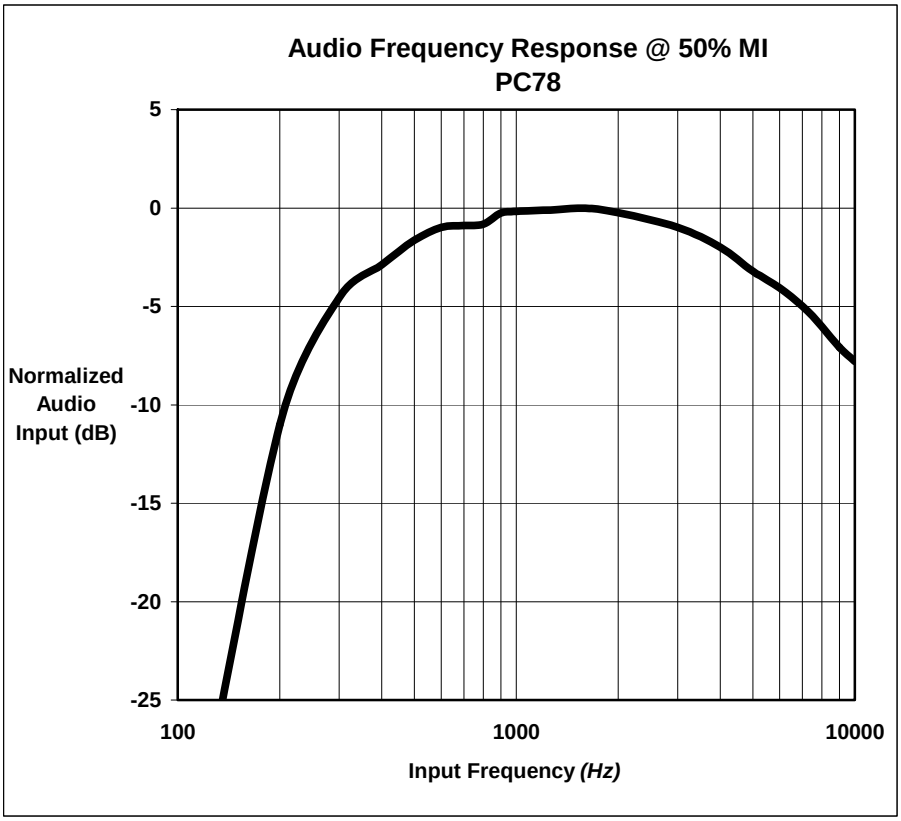
Audio Frequency Response

Measured Audio Response		
Freq	Audio Input	
(Hz)	*(mV)*	*(dB)*
100	200.00	-36.8
200	10.30	-11.0
300	4.90	-4.6
400	4.04	-2.9
500	3.50	-1.6
600	3.25	-1.0
700	3.21	-0.9
800	3.19	-0.8
900	2.99	-0.3
1000	2.96	-0.2
1300	2.93	-0.1
1600	2.90	0.0
2000	2.98	-0.2
3000	3.25	-1.0
4000	3.65	-2.0
5000	4.20	-3.2
6000	4.63	-4.1
7000	5.15	-5.0
8000	5.80	-6.0
9000	6.55	-7.1
10000	7.12	-7.8



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APPENDIX D - Occupied Bandwidth and Emission Mask

References	
Normative Reference Standard	FCC CFR 47 §2.1049, §95.635, RSS-236, 5.4.4
Procedure Reference / Description	Occupied bandwidth was performed by connecting the output of the DUT to the input of a spectrum analyzer. The unit was supplied a 2500Hz audio signal adjusted to 50% plus 16dB.

Limits	
§95.635 RSS-236, 5.4.4 RSS-Gen	At least 25 dB (decibels) on any frequency removed from the center of the authorized bandwidth by more than 50% up to and including 100% of the authorized bandwidth. At least 35 dB on any frequency removed from the center of the authorized bandwidth by more than 100% up to and including 250% of the authorized bandwidth. At least 53 + 10 $\log_{10}$(T) dB on any frequency removed from the center of the authorized bandwidth by more than 250%. RSS-Gen - When the occupied bandwidth limit is not stated in the applicable RSS or reference measurement method, the transmitted signal bandwidth shall be reported as the 99% emission bandwidth, as calculated or measured.

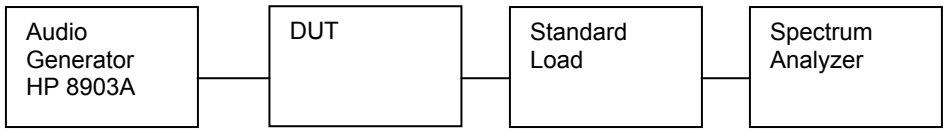
Environmental Conditions	
Temperature	25 +/- 5 ºC
Humidity	40 +/- 10 %
Barometric Pressure	101 +/- 3 kPa

Equipment List

Asset number	Manufacturer	Model	Description	Last cal / Cal due
00241	R&S	FSP40	Spectrum Analyzer	04/09/2015 (first cal cycle)
00027	HP	8903B	Audio Generator/Analyzer	22-Dec-14 / 22-Dec-16

Setup Drawing

Figure 3 - Setup Drawing – Occupied Bandwidth & Emission Mask



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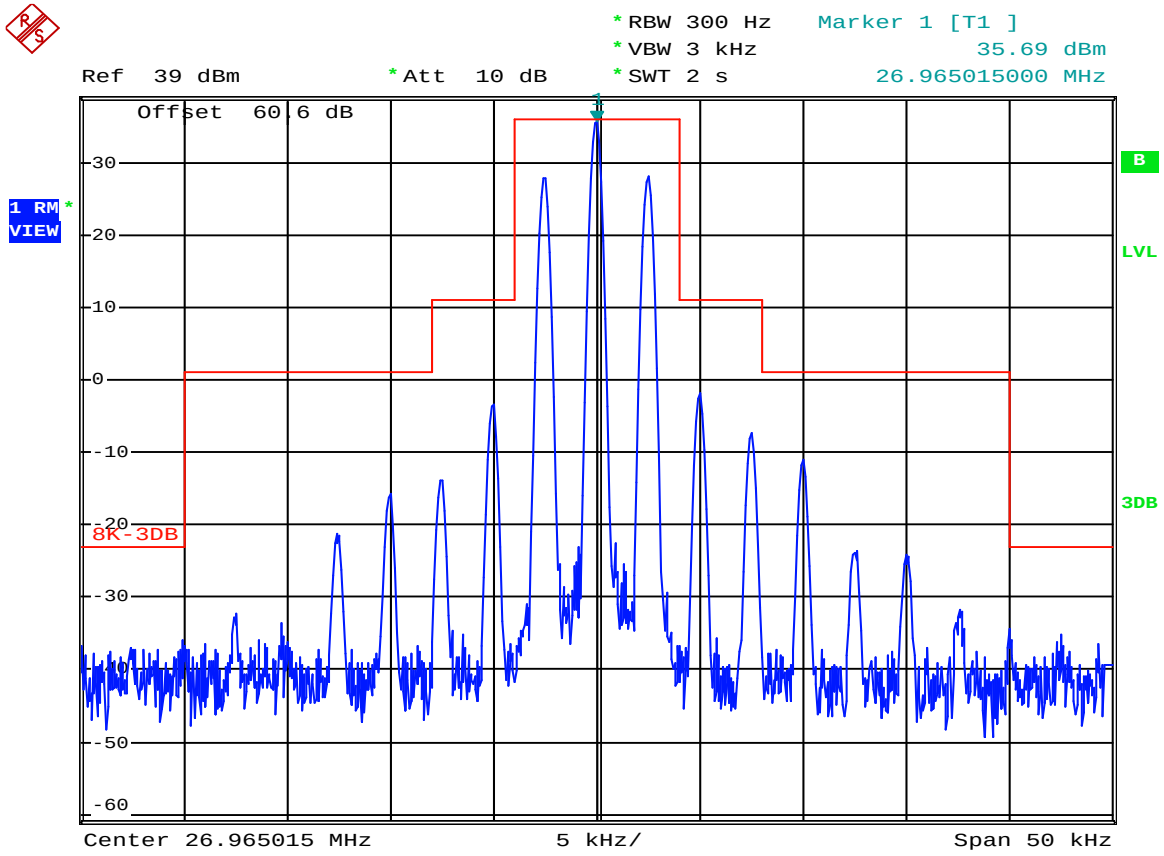
Occupied Bandwidth (Ch 1) w/ Emission Mask



Date: 19.AUG.2015 14:27:47

Channel Frequency: (Ch 1):	26.965MHz
Authorized Bandwidth §95.633(a), RSS-236 (5.3.2):	8kHz
Measured Occupied Bandwidth (99%) RSS-Gen:	5.75kHz
Result:	**Complies**

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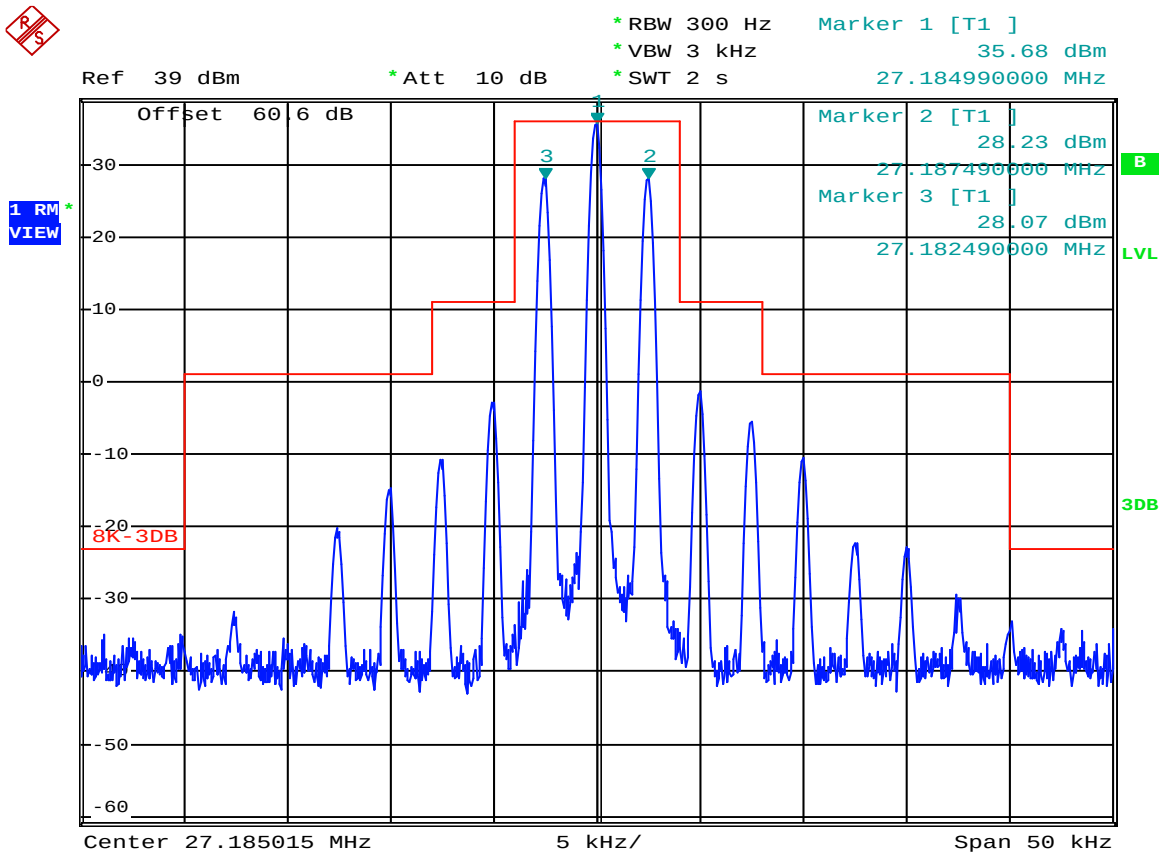
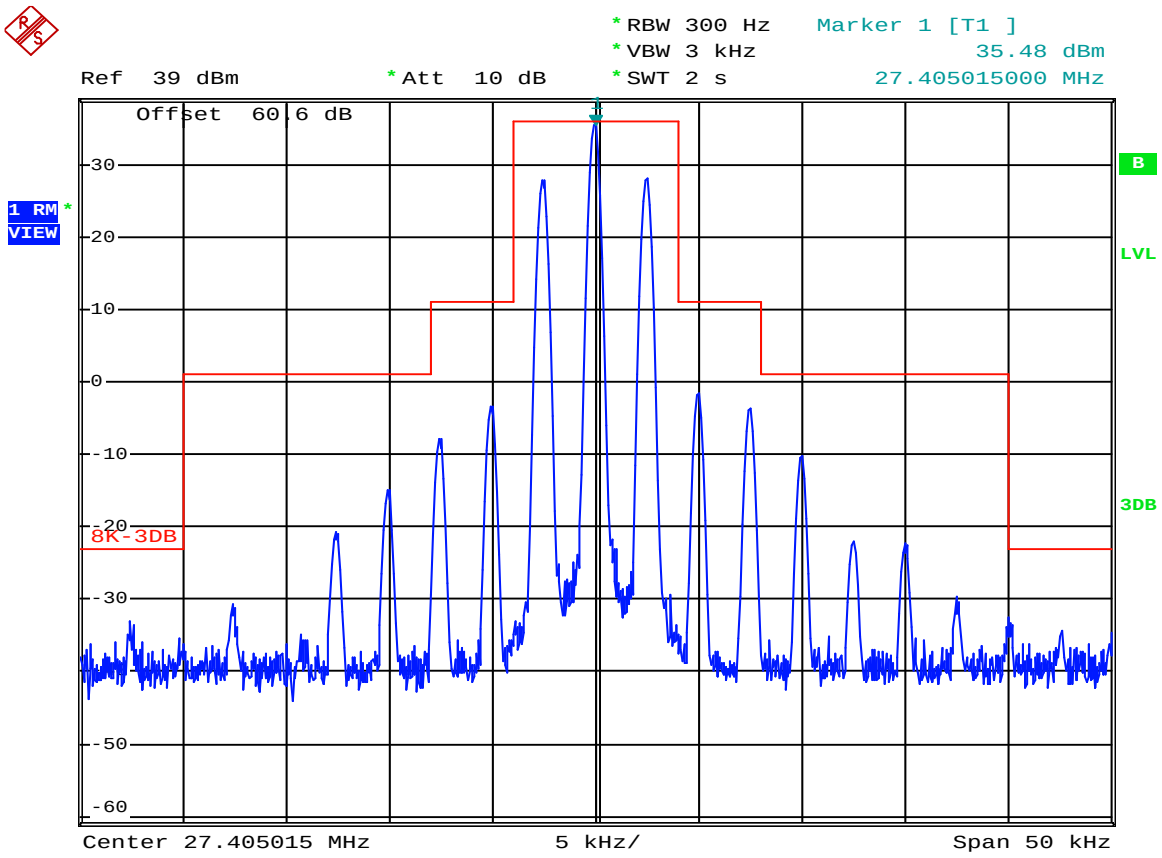
Occupied Bandwidth (Ch 19) w/ Emission Mask



Date: 19.AUG.2015 14:26:04

Channel Frequency: (Ch 19):	27.185
Authorized Bandwidth §95.633(a), RSS-236 (5.3.2):	8kHz
Measured Occupied Bandwidth (99%) RSS-Gen:	5.75kHz
Result:	**Complies**

Occupied Bandwidth (Ch 40) w/ Emission Mask



Date: 19.AUG.2015 14:58:41

Channel Frequency: (Ch 40):	27.405
Authorized Bandwidth §95.633(a), RSS-236 (5.3.2):	8kHz
Measured Occupied Bandwidth (99%) RSS-Gen:	5.75kHz
Result:	**Complies**

APPENDIX E - Spurious Emissions at the Antenna Terminal

References	
Normative Reference Standard	FCC CFR 47 §2.1051, Part 95D,95.635; RSS-236, 5.4.4, RSS-GEN

Limits	
Part 95D: 95.635 RSS-236: 5.4.4	53 + 10 Log (Po) = 59dBc, 60dBc ≥ twice the fundamental frequency.

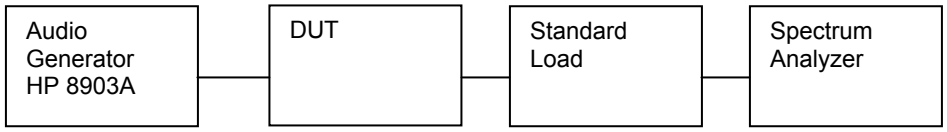
Environmental Conditions	
Temperature	25 +/- 5 ºC
Humidity	40 +/- 10 %
Barometric Pressure	101 +/- 3 kPa

Equipment List

Asset number	Manufacturer	Model	Description	Last cal / Cal due
00027	HP	8903B	Audio Generator/Analyzer	22-Dec-14 / 22-Dec-16
00099	Mini-Circuits	BHP-50	High Pass Filter	Cal on use
00241	R&S	FSU40	Spectrum Analyzer	04-Sep-15 (first cal cycle)

Setup Drawing

Figure 4 - Setup Drawing – Occupied Bandwidth & Emission Mask



Notes:
The spectrum was searched from 9 kHz to 500 MHz.
All detected emissions have been reported.

Detected Emissions

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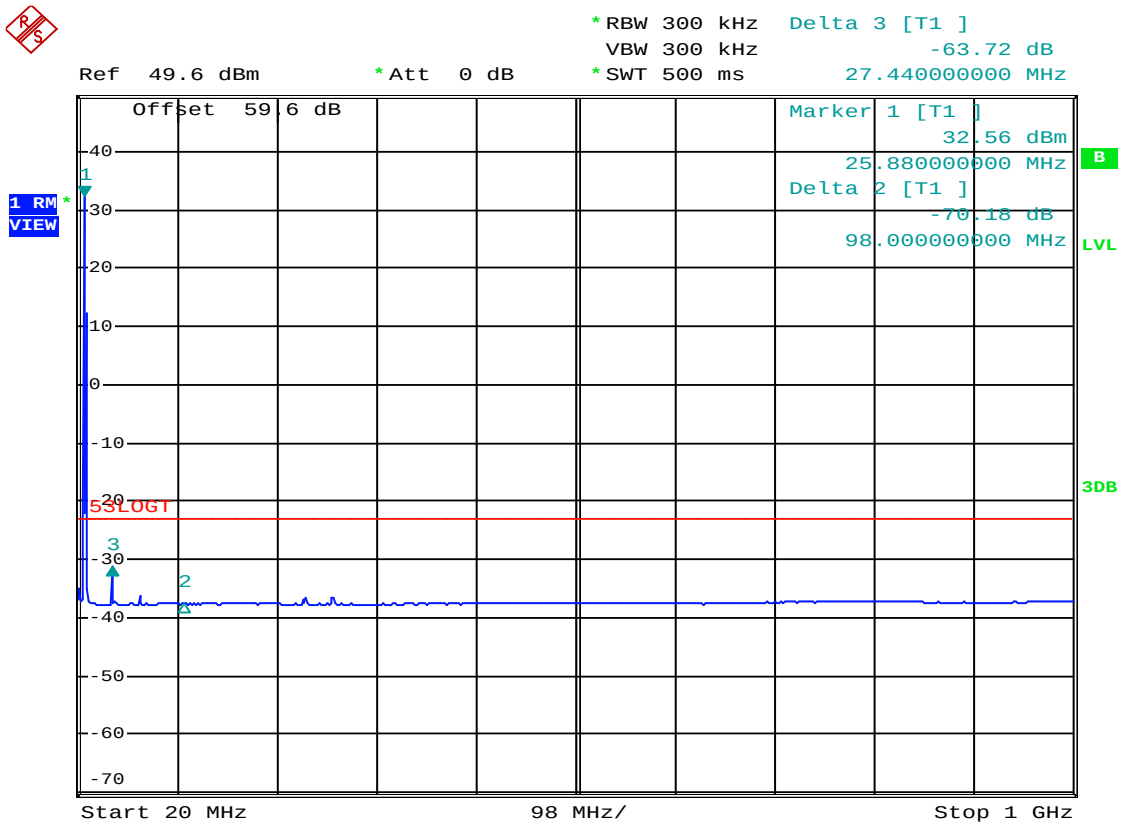
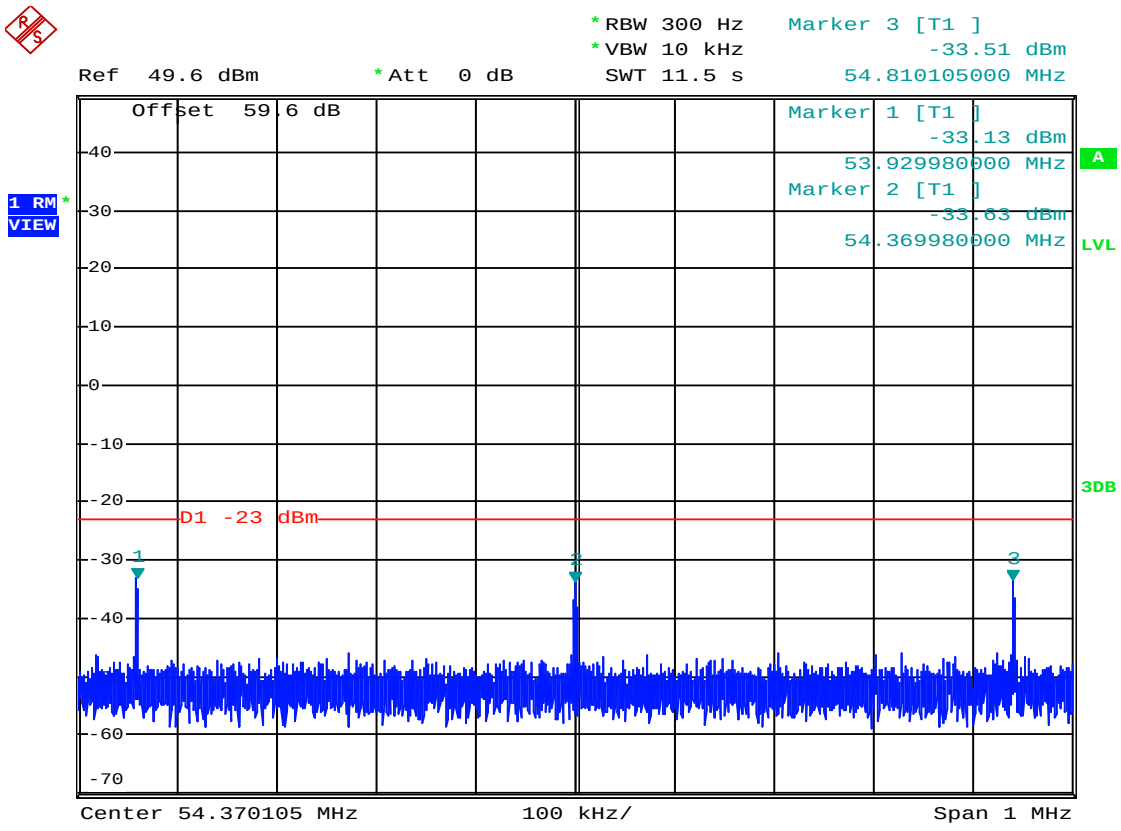
Conducted Spurious Emissions



Date: 23.JUL.2015 14:38:53

Frequency Span:	30MHz to 1GHz
Minimum Attenuation §95.633(a), RSS-236 (5.3.2):	60dB
Result:	**Complies**

Conducted Spurious Emissions Channels 1, 19 40



Date: 23.JUL.2015 12:08:22

Harmonic:	2nd
Minimum Attenuation §95.633(a), RSS-236 (5.3.2):	60dB
Minimum Attenuation Measured:	68.82dB
Margin:	8.82dB
Result:	**Complies**

APPENDIX F - Radiated Spurious Emissions

References	
Normative Reference Standard	FCC CFR 47 §2.1053, §95.635, §15B: RSS-236, 5.4, RSS-GEN
Procedure Reference	ANSI/TIA/EIA-382-A, ANSI C63.4

Limits	
FCC §95.635 RSS-236, 5.4	At least 53 + 10 $\log_{10}$(T) dB on any frequency removed from the center, 60 dB twice removed from fundamental.

Environmental Conditions	
Temperature	25 +/- 5 ºC
Humidity	40 +/- 10 %
Barometric Pressure	101 +/- 3 kPa

Equipment List

Asset number	Manufacturer	Model	Description	Last cal / Cal due
00072	EMCO	2075	Mini-mast	CNR
00073	EMCO	2080	Turn Table	CNR
00071	EMCO	2090	Multi-Device Controller	CNR
00241	R&S	FSU40	Spectrum Analyzer	(first cal cycle) / 04-Sep-15
00050	Chase	CBL-6111A	Bilog Antenna	25-Ap-2014 / 25-Ap-2016
00054	EMCO	3121C	Dipole Antenna	(first cal cycle) / 30-Ap-16
00051	HP	8566B	Spectrum Analyzer RF Section	30-Ap-14 / 30-Ap-16
00049	HP	85650A	Quasi-peak Adapter	30-Ap-14 / 30-Ap-16
00047	HP	85685A	RF Preselector	30-Ap-14 / 30-Ap-16
00006	R & S	SMR 20	Signal Generator (10MHz-40GHz)	08-May-14 / 08-May-16
00239	Mini-Ccts	ZFL-1000VH	Amplifier 10MHz-1GHz	Cal on use
00110	Gigatronics	8652A	Power Meter	17-Feb-14 / 17-Feb-16
00248	Gigatronics	80701A	Power Sensor	18-Feb-14 / 18-Feb-16

CNR = Calibration Not Required

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Measurement Equipment Setup

Measurement Equipment Connections

For the field strength measurements, the measurement equipment was connected as shown in F.6. A number of antennas were used to cover the applicable frequency range tested. The ranges in which each antenna was used are as follows. For the final substitutions, the DUT was replaced with the appropriate antenna and fed from a CW signal source sufficient to replicate the received field strength of the emission being investigated.

Frequency Range	RX Antenna	TX Antenna
9kHz – 30MHz	6502 Loop Ant	n/a
30 MHz - 1GHz	Bilog	Dipole

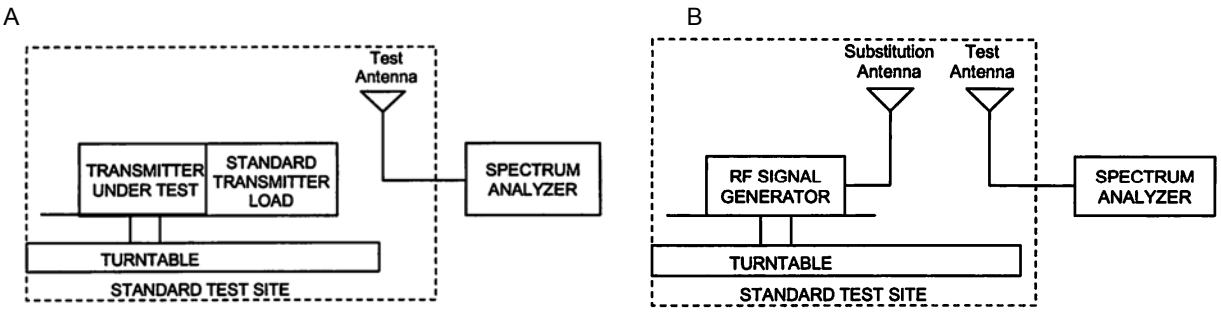
Measurement Equipment Settings

For measuring the radiated field strength of emissions, the spectrum analyzer was set to the following settings:

Range	RBW	VBW	Detector
	kHz	kHz	
9kHz – 30MHz	10	30	Peak
30 MHz - 1GHz	100	300	Peak
1 GHz - 18 GHz	1000	3000	Peak

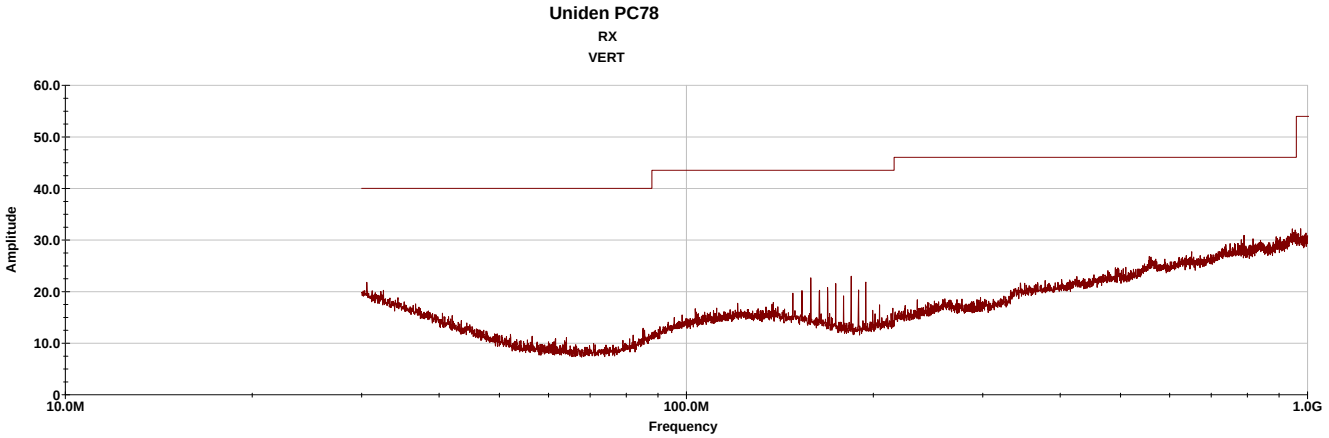
Setup Drawing

Figure 5 - Setup Drawing – Detected Radiated Spurious Emissions



Notes:
The spectrum was searched from the lowest frequency generated in the device to the 10th harmonic of the fundamental.
All detected emissions have been reported.
The DUT was searched on all axis for worst case performance.
Worst case emissions are reported.

Radiated Spurious Emissions (Rx)



Freqency	Antenna Polarization	Emission Level @ 3m	Antenna Factor	Cable Loss	Corrected Emission @ 3m	Substitution Method Correction	Emission Level @ 3m	Limit @ 3m	Margin
(MHz)		*(dBuV/m)*	*(dB)*	*(dB)*	*(dBuV/m)*	*(dB)*	*(dBuV/m)*	*(dBuV/m)*	*(dB)*
30.346	V*	11.0	19.7	0.5	31.2	n/a	31.2	40.0	8.8
148.327	V	13.5	14.8	4.4	32.7	n/a	32.7	43.5	10.8
194.527	V	15.4	18.6	6.0	40.0	n/a	40.0	43.5	3.5
959.328	H*	10.4	24.7	8.2	43.3	n/a	43.3	46.0	2.7

Result: Complies

*No emissions found, noise floor measurement

Notes

Worst-case emissions shown

The device was searched to the 10th harmonic of the fundamental (270 MHz)

Data presented may use a peak detector and compared to quasi-peak limit

All detected emissions have been reported

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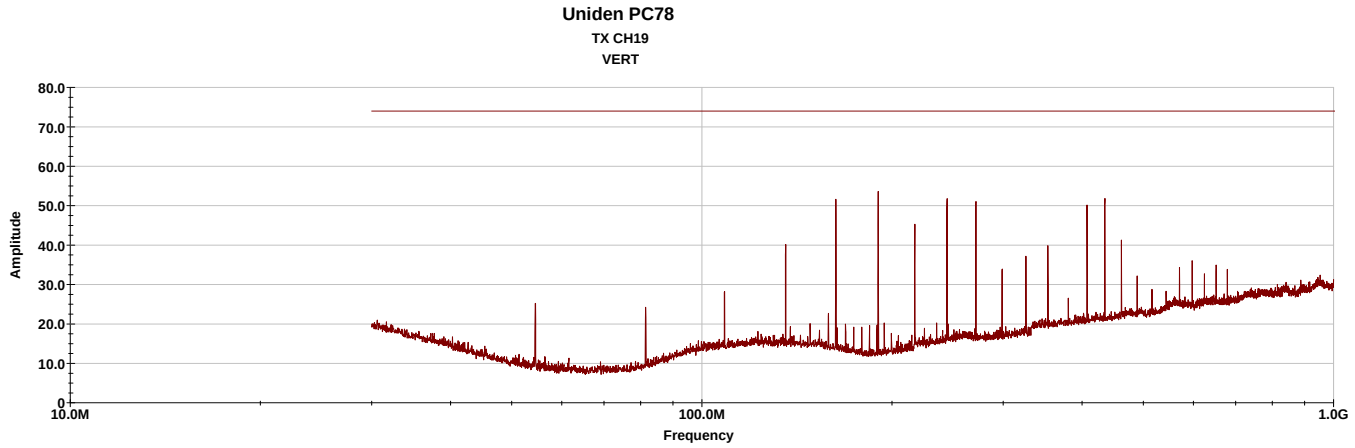
Radiated Spurious Emissions (Tx) Channel 19



Freqency	Antenna Polarization	Emission Level @ 3m	Antenna Factor	Cable Loss	Corrected Emission @ 3m	Substitution Method Correction	Corrected Emission Level	Limit	Margin
(MHz)		*(dBuV)*	*(dB)*	*(dB)*	*(dBuV/m)*	*(dB)*	*(dBm)*	*(dBm)*	*(dB)*
188.752	H	54.9	9.5	2.1	66.5	1.5	-29.4	-24.0	5.4
215.723	H	52.0	10.2	2.9	65.1	-0.3	-32.6	-24.0	8.6
242.691	H	51.9	12.4	3.0	67.3	0.8	-29.3	-24.0	5.3
431.4312	H	33.0	17.2	5.7	55.9	0.2	-41.3	-24.0	17.3
188.752	V	43.0	9.5	2.1	54.6	1.5	-41.3	-24.0	17.3
215.723	V	49.0	10.2	2.9	62.1	-0.3	-35.6	-24.0	11.6
242.691	V	46.0	12.4	3.0	61.4	0.8	-35.2	-24.0	11.2
431.431	V	28.0	17.2	5.7	50.9	0.2	-46.3	-24.0	22.3

Result: Complies

Notes

Worst-case emissions shown

The device was searched to the 10th harmonic of the fundamental (270 MHz)

Data presented may use a peak detector and compared to quasi-peak limit

All detected emissions have been reported

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APPENDIX G - Frequency Stability

References	
Normative Reference Standard	FCC CFR 47 §2.1055, §95.625, RSS-GEN
Procedure Reference / Description	The frequency stability shall be measured with variation of ambient temperature as follows: (1) From -30° to +50° centigrade.

Limits	
FCC §95.625	The channel center must be maintained within a frequency tolerance of 0.005%.

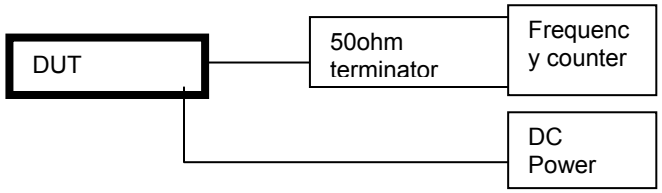
Environmental Conditions	
Temperature	25 +/- 5 ºC
Humidity	40 +/- 10 %
Barometric Pressure	101 +/- 3 kPa

Equipment List

Asset number	Manufacturer	Model	Description	Last cal / Cal due
n/a	ESPEC	ECT-2	Heater/Refrigerator	n/a
00003	HP	53181A	Frequency Counter	28-Ap-14 / 28-Ap-16
n/a	HP	E3611A	DC Power Supply	Cal on use
00234	VWR	61161-378	Temperature Humidity Monitor	New / 08-May-2016

Setup Drawing

Figure 6 - Setup Drawing – Frequency Stability



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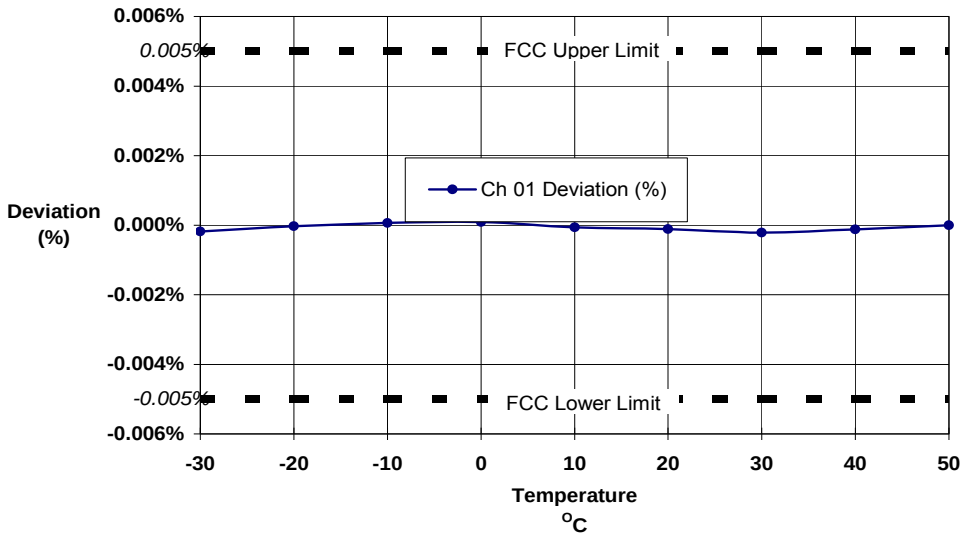
Frequency Stability

Nomimal Frequency (MHz):	26.965 (Ch 1)
Nominal Voltage (VDC):	13.8
Nominal Temperature (°C):	25



Frequency Stability Measurements (Temperature)

Temp (°C)	Assigned Frequency (MHz)	Measured Frequency (MHz)	Deviation (%)
-30	26.965000	26.964952	-0.00018%
-20	26.965000	26.964993	-0.00003%
-10	26.965000	26.965016	0.00006%
0	26.965000	26.965024	0.00009%
10	26.965000	26.964983	-0.00006%
20	26.965000	26.964969	-0.00011%
30	26.965000	26.964941	-0.00022%
40	26.965000	26.964967	-0.00012%
50	26.965000	26.964998	-0.00001%
		Maximum Deviation:	0.00022%
		Maximum Limit:	0.00500%
		Result:	Complies

Frequency Stability Measurements (Voltage)

Voltage (VDC)	Assigned Frequency (MHz)	Measured Frequency (MHz)	Deviation (%)
15.9 (115%)	26.965000	26.964947	-0.00020%
13.8 (100%)	26.965000	26.964947	-0.00020%
11.7 (85%)	26.965000	26.964947	-0.00020%
		Maximum Deviation:	0.00020%
		Maximum Limit:	0.00500%
		Result:	Complies

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