Project 18951-15

Sagetech Corporation

XPG-TR, XPC-TR, XPS-TR

Mode A, C, and S Transponders 1090 MHz Transceiver

Wireless Certification Report

FCC Part 87

Prepared for:

Sagetech Corporation LLC P.O. Box 1146 186 E. Jewett Blvd White Salmon, WA 98672

By

Professional Testing (EMI), Inc. 1601 North A.W. Grimes Blvd., Suite B Round Rock, Texas 78665

17 Mar 2017

Reviewed by

Larry Finn Chief Technical Officer Written by

Eric Lifsey EMC Engineer

Revision History

Revision Number	Description	Date
DRAFT 03	Draft for review.	21 Apr 2017
01	Final released.	21 Apr 2017

Er	rata	:
	Iala	٠

None.

Table of Contents

Revis	ion Hi	story	2
Certi	ficate	of Compliance	5
1.0	Intr	oduction	6
1.1	l S	Scope	6
1.2	2 E	EUT Description	6
1.3	3 E	EUT Operation	6
1.4	1 N	Modifications to EUT	6
1.5	5 T	Test Site	6
1.6	5 N	Measurement Correction Methods	7
2.0	App	plicable Documents	8
3.0	Cor	nducted Output Power at Antenna Terminal	9
3.1	I I	Test Procedure	9
3.2	2 T	est Criteria	9
3.3	3 T	Test Results	9
4.0	Occ	cupied Bandwidth and Modulation Characteristics	10
4.1	I I	Test Procedure	10
4.2	2 T	Cest Criteria	10
4.3	3 T	Test Results, Bandwidth	10
4.4	1 Т	Test Results, Modulation Characteristics	11
5.0	Spu	rious Emissions at Antenna Terminals	13
5.1	T l	Test Procedure	13
5.2	2 T	Test Criteria	13
5.3	3 T	Test Results	13
6.0	Fiel	ld Strength of Spurious Emissions	15
6.1	I I	Test Procedure	15
6.2	2 T	Cest Criteria	15
6.3	3 T	Test Results	15
(6.3.1	Transmit Mode; Radiated Emissions, 30 MHz to 1 GHz, Vertical Polarization	16
(6.3.2	Transmit Mode; Radiated Emissions, 30 MHz to 1 GHz, Horizontal Polarization	17
(6.3.3	Transmit Mode A/C; Radiated Emissions, 1 to 11 GHz, Vertical Polarization	18
(6.3.4	Transmit Mode A/C; Radiated Emissions, 1 to 11 GHz, Horizontal Polarization	19
(6.3.5	Transmit Mode S; Radiated Emissions, 1 to 11 GHz, Vertical Polarization	20
(6.3.6	Transmit Mode S; Radiated Emissions, 1 to 11 GHz, Horizontal Polarization	21
(6.3.7	Receive Mode; Radiated Emissions, 30 MHz to 1 GHz, Vertical Polarization	22
(6.3.8	Receive Mode; Radiated Emissions, 30 MHz to 1 GHz, Horizontal Polarization	23
(6.3.9	Receive Mode; Radiated Emissions, 1 to 11 GHz, Vertical Polarization	24

6.3.10 Receive Mode; Radiated Emissions, 1 to 11 GHz, Horizontal Polarization .	25
7.0 Frequency Stability	26
7.1 Test Procedure	26
7.2 Test Criteria	26
7.3 Test Results	26
7.3.1 Temperature	27
7.3.2 Voltage	27
3.0 Equipment Lists	28
Appendix: Policy, Rationale, and Evaluation of EMC Measurement Uncertainty	30
End of Report	31

NOTICE: (1) This Report must not be used to claim product endorsement, by NVLAP, NIST, the FCC or any other Agency. This report also does not warrant certification by NVLAP or NIST. (2) This report shall not be reproduced except in full, without the written approval of Professional Testing (EMI), Inc. (3) The significance of this report is dependent on the representative character of the test sample submitted for evaluation and the results apply only in reference to the sample tested. The manufacturer must continuously implement the changes shown herein to attain and maintain the required degree of compliance.



Certificate of Compliance

Applicant	Device & Test Identificat	ion
Sagetech Corporation LLC	Model(s):	XPG-TR, XPC-TR, XPS-TR
P.O. Box 1146	FCC ID:	YT5XP-TR
186 E. Jewett Blvd	Laboratory Project ID:	18951-15
White Salmon, WA 98672		
Certificate Date: 17 Apr 2017		

The EUT model(s) listed above were tested utilizing the following documents and found to be in compliance with the required criteria.

47 CFR, FCC Part 87 and Part 2		
Section	Description	
87.131; 2.1046	Power and emissions; conducted output power	
87.135; 87.137; 2.1049	Bandwidth of & type of emission; occupied bandwidth: 14M0M1D	
2.1047	Modulation characteristics	
87.139(a); 2.1051	Emission limitations; Spurious/harmonic emissions at antenna terminals	
87.139(a); 2.1053	Emission limitations; radiated emissions 30 MHz - 10 GHz	
87.133; 2.1055(a)(1)	Frequency stability;	
67.155, 2.1055(d)(1)	Aeronautical utility mobile stations on 1090 MHz; 1000 ppm.	
87.143	Transmitter control requirements	

I, Eric Lifsey, for Professional Testing (EMI), Inc., being familiar with the above rules and test procedures have reviewed the test setup, measured data, and this report. I believe them to be true and accurate.

Eric Lifsey EMC Engineer

This report has been reviewed and accepted by the Applicant. The undersigned is responsible for ensuring that this device will continue to comply with the requirements listed above.

Representative of Applicant

1.0 Introduction

1.1 Scope

This report describes the extent to which the equipment under test (EUT) conformed to the intentional radiator requirements of the United States.

1.2 EUT Description

Table 1.2.1 Equipm	ent Under Test		
Manufacturer & Description	Model	Serial #	Photo
Sagetech Corporation LLC			
Mode A, C, and S Transponder for 1090 MHz	XPG-TR	06267	Ext Arthemo
Model(s) Represe	ented By Above:	XPC-TR, XPS-TI	R, XPS-TRB
Оро	erating Voltage:	14 VDC nomin	al; 10 – 32 VDC overall

Table 1.2.2 Compliance Statements		
Requirement	Compliance Statement	
FCC 87.143	Power control requirement; power is removed at the aircraft operator's position by the user either removing power from the EUT itself, pulling the circuit breaker, or removing the power plug at the end of the power cable.	

1.3 EUT Operation

The EUT was exercised in a manner consistent with normal operations. To insure accurate measurement, the EUT was placed into higher than normal duty cycle modes by interrogation commands from an external protocol tester attached via the antenna port. Measurements were made possible by using a forward power coupler.

1.4 Modifications to EUT

None.

1.5 Test Site

Radiated measurements were made at the PTI semi-anechoic facility designated Site 45 (FCC 459644, IC 3036B-1) in Austin, Texas. The site is registered with the FCC under Section 2.948 and Industry Canada per RS-GEN, and is subsequently confirmed by laboratory accreditation (NVLAP). The test site is located at 11400 Burnet Road, Austin, Texas 78758, while the main office is located at 1601 North A.W. Grimes Boulevard, Suite B, Round Rock, Texas, 78665.

Professional Testing (EMI), Inc., (PTI) follows the guidelines of National Institute of Standards

and Technology (NIST) for all uncertainty calculations, estimates, and expressions thereof for electromagnetic compatibility testing.

1.6 Measurement Correction Methods

Table 1.6 1 Measurement Corrections		
Parameter	From Sums Of	
Radiated Field Strength	Raw Measured Level + Antenna Factor + Cable Losses – Amplifier Gain	
Conducted Antenna Port	Raw Measured Level + Attenuator Factor + Cable Losses	
Conducted Mains Port	Raw Measured Level + LISN Factor + Cable/Filter/Limiter Losses	

Additionally, measurement distance extrapolation factors (such as 1/d above 30 MHz) are applied and documented where used.

2.0 Applicable Documents

Table 2.0.1: Applicable Documents		
Document #	Title/Description	
TIA/EIA 603C 2004	Land Mobile FM or PM Communications Equipment, Measurement and	
11A/EIA 603C 2004	Performance Standards	
47 CED	FCC Part 87 – Subpart D – Technical requirements	
47 CFR	FCC Part 2 – Subpart J – Equipment authorization procedures	

3.0 Conducted Output Power at Antenna Terminal

3.1 Test Procedure

The output of the EUT was connected directly to an attenuator and then to the spectrum analyzer. A peak detector was used for the measurement. The transmitter was switched on, and the measurement receiver was tuned to the frequency of the transmitter under test. The loss of the attenuator was compensated by adding an offset to the analyzer amplitude. Power was measured directly with the spectrum analyzer using a resolution bandwidth greater than the occupied bandwidth of the transmitter.

3.2 Test Criteria

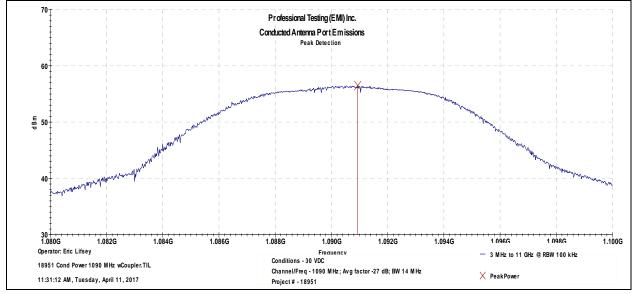
Table 3.2.1 Authorized Power, 87.131 (Radionavigation Unspecified), 2.1046
Minimum 125 Watts per RTCA/DO-181D

3.3 Test Results

Table 3.3.1 Peak Power Measured In 10 MHz RBW, 50 MHz VBW				
Measured Power (peak)	56.5 dBm or 446.7 Watts			

Table 3.3.2 Calculated Duty Cycle and Average Power					
Measured Power (peak)	56.5 dBm or 446.7 Watts				
Transmit Times (μs)	DO-181E: 500 Mode A/C, 50 Mode S replies, 6.2 Squitters/second				
Total Transmit Time	215 μs				
Maximum Duty Cycle	0.72 %				
Averaging Factor	10 log ₁₀ (0.72%) = -21.4 dB				
Average Power	P_{peak} + Factor _{avg} = 56.5 – 21.4 = 35.1 dBm or 3236 mW				

The EUT satisfied the requirements. Plotted results included below.



Peak Power

4.0 Occupied Bandwidth and Modulation Characteristics

4.1 Test Procedure

The output of the EUT was connected directly to an attenuator and then to the spectrum analyzer. The spectrum analyzer was tuned to the frequency of the transceiver under test and the EUT activated in continuous transmit mode. Bandwidth is measured relative to the peak power measurement measured separately in full bandwidth. Modulation is a pulse train; to verify a time-domain capture of the pulse train was recorded and compared to expected timings.

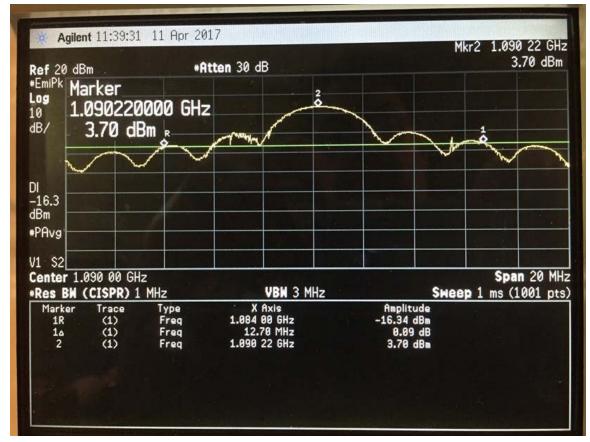
4.2 Test Criteria

Table 4.2.1 Authorized Bandwidth, 87.135; 87.137; 2.1049
14 MHz per 87.137 table; emission designator 14M0M1D

4.3 Test Results, Bandwidth

Table 4.3.1 Bandwidth In 20 dB (1 MHz RBW 3 MHz VBW)				
Reference Power Level	56.5 dBm			
Measured 20 dB Bandwidth	12700 kHz			
Emission Designator	12M7M1D			

The EUT satisfied the requirements. Results appear below.

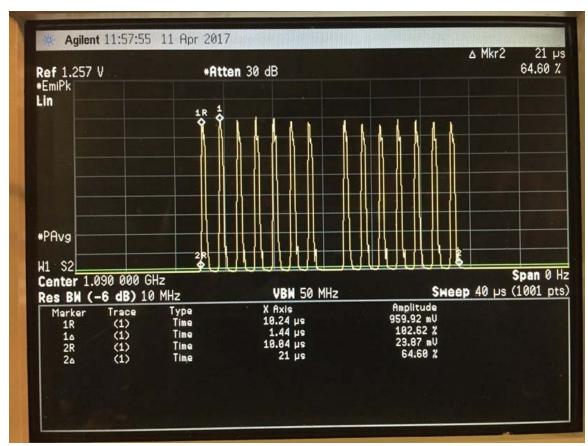


Bandwidth Measured

4.4 Test Results, Modulation Characteristics

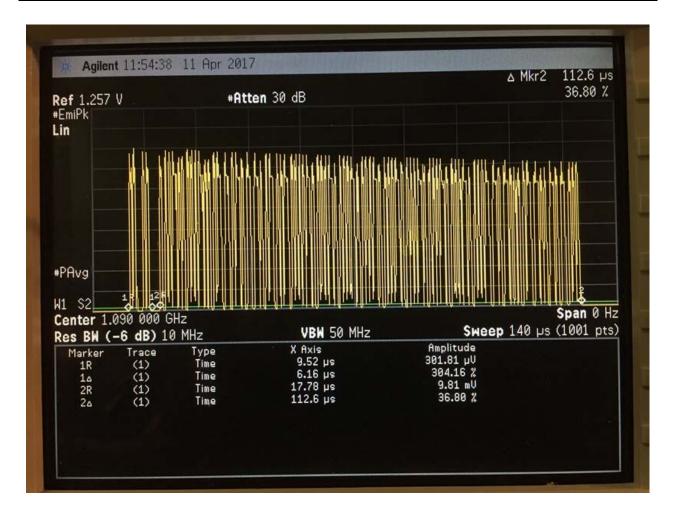
The pulse train was captured in time domain and observed for basic parameters listed below. These were found to be within the expected limits.

Table 4.4.1 Modulation Characteristics Measured, Short Packet						
Bit-Bit Time1.44 μsec (Marker 1 delta)						
Payload Time	21.0 µsec (Marker 2 delta)					



Captured Modulated Data Stream; Short Packet

Table 4.4.2 Modulation Characteristics Measured, Long Packet						
Preamble Time6.16 μsec (Marker 1 delta)						
Payload Time	112.6 μsec (Marker 2 delta)					



Page 12 of 31

5.0 Spurious Emissions at Antenna Terminals

5.1 Test Procedure

The output of the EUT was connected directly to a power attenuator, forward power coupler, and then to a spectrum analyzer. The transmitter was switched on, and the measurement receiver was swept with TILE V4 software up to the 10th harmonic. EUT could not operate in continuous transmit mode but was adjusted to a higher rate that the transmitter could sustain. Software was adjusted to maximize capture of emissions using maximum point capability (8192 points), running 50 sweeps of 500 ms each, and 20 sweep ranges dividing up 3 MHz to 11 GHz.

5.2 Test Criteria

Table 5.2.1 Spurious Limit, FCC 87.139(a) Basis for limit calculations.					
Measured Peak Transmitter Power:	56.5 dBm or 446.7 Watts				
Average Power Calculated P _t :	P _t = 35.1 dBm or 3236 mW				

Table 5.2.2 Spurious Limit, FCC 87.139(a)(1)				
Attenuation & Frequency Range: 25 dB out to ±7 MHz (50% of BW)				
Deduct Attenuation from Measured Power:	35.1 dBm – 25 dB = 10.1 dBm			

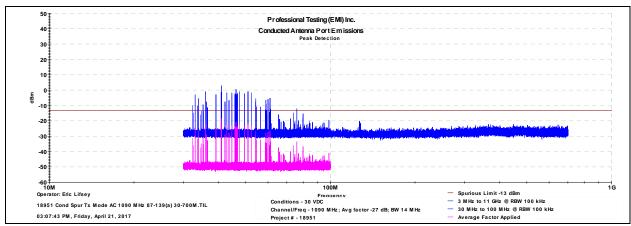
Table 5.2.3 Spurious Limit, FCC 87.139(a)(2)					
Attenuation & Frequency Range:	35 dB from ±7 to ±14 MHz (100% of BW)				
Deduct Attenuation from Measured Power:	35.1 dBm – 35 dB = 0.1 dBm				

Table 5.2.4 Spurious Limit, FCC 87.139(a)(3)				
Attenuation & Frequency Range: 40 dB beyond ±35 MHz (250% of BW				
Deduct Attenuation from Measured Power:	35.1 dBm – 40 dB = -4.9 dBm			

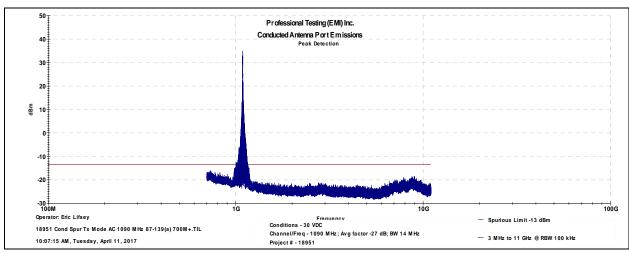
5.3 Test Results

Limits are based on mean or average levels. The overall graph is peak levels. Where applicable the averaging factor is numerically applied with peak and average levels displayed.

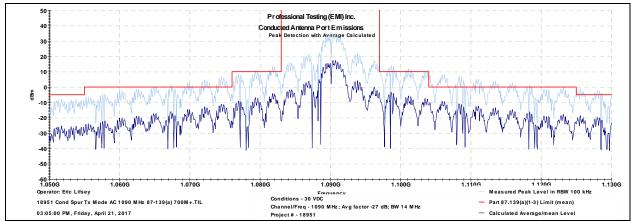
The EUT satisfied the requirements. Plotted measurements appear below.



Conducted Antenna Port Spurious; Full Range 30 MHz to 700 MHz Measured Peak Levels and Applicable Calculated Averages Presented



Conducted Antenna Port Spurious; Full Range 700 MHz to 11 GHz
Measured Peak Levels

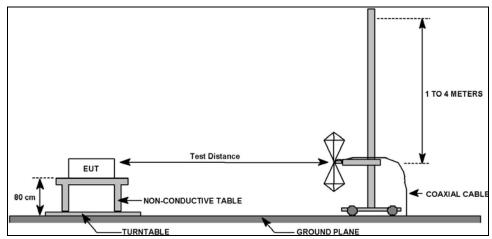


Conducted Antenna Port Spurious; 87.139(a)(1-3) Mask Detail Measured Peak and Calculated Average Presented

6.0 Field Strength of Spurious Emissions

6.1 Test Procedure

The EUT was placed on a non-conductive table 0.8 meters above the ground plane. The table was centered on a rotating turntable. Antennas were located from the EUT at distances of 10 meters for below 1 GHz and 3 meters for above 1 GHz. The EUT was placed into transmit mode with the antenna removed and a resistive terminator substituted. EUT duty cycle was raised to a safe maximum and the measurement software sweep count increased to capture the signals.



Field Strength of Radiated Emissions Test Setup

6.2 Test Criteria

Table 6.2.1 Radiated Spurious Limit, 87.139(a)(3) (Calculated limit -13.4 dBm.)				
Method:	$P_r = P_t + G_t + G_t + 20\log_{10}\left(\frac{\lambda}{4\pi R}\right)$			
Path Loss Term:	10 m: 20 $\log_{10} (\lambda / 4\pi R) = 20 \log_{10} (0.30675 / 4\pi 10) = -52.25 dB$			
Patii Loss Terrii.	3 m: $20 \log_{10} (\lambda / 4\pi R) = 20 \log_{10} (0.30675 / 4\pi 3) = -41.79 dB$			
Danner at D	10 m: -13.4 dBm + 0 dB + 0 dB + [-52.25 dB] = -65.65 dBm			
Power at R:	3 m: -13.4 dBm + 0 dB + 0 dB + [-41.79 dB] = -55.19 dBm			
Field Strength Limit	$E(dB\mu V/m) = P_{meas}(dBm) - P_{gain}(dB) + 77.2dB + 20\log(f, MHz) - G_{ant}(dB)$			
Conversion Formula:				
Field Strength Limit	[-65.65 dBm] – 0 dB + 77.2 dB + 20 log ₁₀ (1090 MHz) - 0 dB			
Calculation, 10 m:	= 72.3 dBμV/m			
Field Strength Limit	[-55.19 dBm] – 0 dB + 77.2 dB + 20 log ₁₀ (1090 MHz) - 0 dB			
Calculation, 3 m:	= 82.8 dBμV/m			

6.3 Test Results

The EUT satisfied the requirements. Plotted measurements appear below. Above 1 GHz, emissions were measured for modes A/C and S.

Emissions were below the peak/QP limits of Part 15 and are reflected in the tabular data. The 87.139 field limits calculated above are included as the uppermost limit line in the plotted results.

6.3.1 Transmit Mode; Radiated Emissions, 30 MHz to 1 GHz, Vertical Polarization

			Profes	sional Te	sting, El	VII, Inc.				
ANSI C63.4: 2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz									rom	
In accordance with: FCC Part 15.109 - Code of Federal Regulations Part 47, Subpart B - Unintentional Radiators, R Emissions Limits								adiators, Radi	iated	
Section:		15.109								
Test Date(s):	4/10/2017			EUT Serial	#:	267			
Customer:		Sagetech C	orporation		EUT Part #:		None			
Project Nui	nber:	18951-10			Test Techn	ician:	Dave Kohu	tek		
Purchase O	rder #:	8196			Supervisor		Lisa Arndt			
Equip. Und	er Test:	XPG-TR			Witness' N	ame:	Matt Hami	lton		
	F	Radiated Em	issions Test	t Results Data	a Sheet		Pa	ge: 1	of	1
EUT Li	ne Voltage:	: 1	4 VDC		EUT Pow	er Frequen	cy: N	/A N/A		
Antenna	orientation	n:	Vertic	al	Frequ	ency Range:	;	30MHz to	1GHz	
	EUT N	lode of Ope	eration:			Trar	smit A/C N	lode		
Frequency Measured (MHz)	Test Distance (Meters)	EUT Direction (Degrees)	Antenna Height (Meters)	Detector Function	Recorded Amplitude (dBµV)	Corrected Level (dBµV/m)	Limit Level (dBμV/m)	Margin (dB)	Test Re	esults
45.9819	10	76	1.25	Quasi-peak	26.8	9.378	29.5	-20.1	Pas	ss
47.8122	10	254	1.31	Quasi-peak	24.9	5.457	29.5	-24.0	Pas	SS
55.2299	10	142	1.75	Quasi-peak	25.7	8.005	29.5	-21.5	Pas	SS
56.0104	10	10	4.03	Quasi-peak	26.3	8.465	29.5	-21.0	Pas	SS
62.1136	10	99	4.04	Quasi-peak	31.2	11.59	29.5	-17.9	Pas	SS
62.5627	10	109	2.4	Quasi-peak	31.8	11.996	29.5	-17.5	Pas	SS
62.818	10	238	3.14	Quasi-peak	32	12.002	29.5	-17.5	Pas	SS
894.181	10	169	2.96	Quasi-peak	21.4	25.973	35.6	-9.6	Pas	SS
911.531	10	46	2.92	Quasi-peak	21.2	26.014	35.6	-9.6	Pas	SS
Radiated 30MHz-1: 80		stance Measured Emissions	100M Mode: Tra		quency	▼ Corre	UT: XPG-TR		PROFESSI	
18951'041017'RE'TXSpur'Run03'ModeA C.til Mode: Transmit; Mode S Power: 14 VDC 02:15:34 PM,Monday,April10,2017						D	roject Number: 18951	-15		

6.3.2 Transmit Mode; Radiated Emissions, 30 MHz to 1 GHz, Horizontal Polarization

			Profes	sional Te	sting, EN	VII, Inc.			
Test Metho	od:			an National Star Electronic Equi				adio-Noise En	nissions from
In accorda	nce with:	Emissions Li		Federal Regulat	Subpart B - Ur	nintentional R	adiators, Rad	iated	
Section:		15.109			I		V		
Test Date(s	<u>s):</u>	4/10/2017			EUT Serial		267		
Customer: Project Nu	mhari	18951-10	Corporation		EUT Part #:		None Dave Kohu	ı+alı	
Purchase C		8196			Supervisor:		Lisa Arndt	itek	
Equip. Und		XPG-TR			Witness' Na		Matt Hami	ilton	
		Radiated Er	nissions Tes	t Results Data			Pa	ge: 1	of 1
EUT L	ine Voltage	: :	L4 VDC		EUT Pow	er Frequen	cy: N	/A N/A	
Antenna	orientation	n:	Horizoi	ntal	Frequ	ency Range:		30MHz to	1GHz
	EUT N	/lode of Op	eration:			Trar	nsmit A/C N	/lode	
Frequency Measured (MHz)	Test Distance (Meters)	EUT Direction (Degrees)	Antenna Height (Meters)	Detector Function	Recorded Amplitude (dBμV)	Corrected Level (dBμV/m)	Limit Level (dBµV/m)	Margin (dB)	Test Results
31.0722	10	56	2.09	Quasi-peak	24.2	12.186	29.5	-17.3	Pass
202.783	10	37	2.95	Quasi-peak	31.5	17.09	33.1	-16.0	Pass
870.373	10	44	3.35	Quasi-peak	21.4	24.718	35.6	-10.9	Pass
892.062	10	122	1.28	Quasi-peak	21.4	25.876	35.6	-9.7	Pass
899.862 913.434	10 10	41 267	1.97 1.82	Quasi-peak Quasi-peak	21.3 21.2	26.136 26.015	35.6 35.6	-9.5 -9.6	Pass Pass
313.434	10	207	1.02	Quusi peuk	21.2	20.013	33.0	3.0	1 433
Radiated	sional Testing, Emissions, 10m D GHz Ho rizo ntal Polar	istance	ns			∨ Corre − Corre ∨ Verifi × LPRF	i-peak Limit Level octed Quasi-peak Rea octed Peak Value ed Low-PRF QP Rea of Verification Limit oedLimit		PROFESSIONAL TESTING
700 Field Strength (d Bu V/m) (d					×				×*×
10	and the second s	and the second s	100M	illiabel e les services de les profesiones de la les					1G
0 30M									
0 30M Operator:	Eric Lifsey			Free ansmit; Mode S	luency	E	UT: XPG-TR		

6.3.3 Transmit Mode A/C; Radiated Emissions, 1 to 11 GHz, Vertical Polarization

		Pro	ofessional	Tes	sting,	EMI,	Inc.					
Test Method:		-	American National cal and Electronic							loise Emi	issions	from
In accordance with:		t 15.109 - Co ns Limits	ode of Federal Re	gulati	ons Part	47, Subpa	rt B - Unin	tentio	nal Radiato	ors, Radia	ated	
Section:	15.109											
Test Date(s):	4/10/2	017			EUT Ser	ial #:	2	67				
Customer:	Sagete	ch Corpor	ation		EUT Pai	t #:	N	one				
Project Number:						chnician	: ['] D	ave K	ohutek			
Purchase Order #:	8196				Supervi	sor:	<u>Li</u>	sa Ar	ndt			
Equip. Under Test:	XPG-TF	₹			Witness	' Name:	: Î V	latt H	lamilton			
	Radiated	d Emission	ns Test Results	Data	Sheet				Page:	1	of	1
EUT Line Voltag	e:	14	VDC		EUT	Power F	requency	:	N/A	N/A		
Antenna Orientat	ion:		Vertical		Fre	equency	Range:		Al	oove 10	SHz	
EUT	Mode of	Operatio	n:	ľ			Transı	mit A	/C Mode			
Professional Testin Radiated Emissions, 3m I 1-11GHz Vertical Polarity Me	Distance						Corrected Licensed L	imit	admg		PROFES	/
80 80 70 70				 			× corvpi	EAKS			PROFES T E S	SIUNAL TING
Field Strength (d Bµ V/m) (0 Bµ V/m) (0 Bµ V/m)	high and a strong		Later than the second		Joseph John Marie L.		A CONTRACTOR OF THE PARTY OF TH				and the second	
30 30				-						_		
20 [±]		+		+ -		+	+	+		+	10G 11	G
Operator: Eric Lifsey 18951'041017'RE'TxSpur'R 04:19:58 PM, Monday, Apri		1	Mode: Transmit; Mode S Power: 14 VD C	Frequ	uency		Proj		er: 18951-15 ch Corporation			
•				ıa Pol	larity M	easured	Clien	t: Sageted				

6.3.4 Transmit Mode A/C; Radiated Emissions, 1 to 11 GHz, Horizontal Polarization

	l	Professional To	esting, EMI, Inc	•				
Test Method:		•	andard for Methods of Mea uipment in the Range of 9			oise Em	issions	from
In accordance with:	FCC Part 15.10 Emissions Limit	_	ations Part 47, Subpart B -	Unintentio	onal Radiato	ors, Radia	ated	
Section:	15.109							
Test Date(s):	4/10/2017		EUT Serial #:	267				
Customer:	Sagetech Cor	poration	EUT Part #:	None				
Project Number:	18951-10		Test Technician:	Dave	Kohutek			
Purchase Order #:	8196		Supervisor:	Lisa A	rndt			
Equip. Under Test:	XPG-TR		Witness' Name:	Matt I	Hamilton			
	Radiated Emis	sions Test Results Da	ta Sheet		Page:	1	of	1
EUT Line Voltage	e: 14	VDC	EUT Power Freque	ency:	N/A	N/A		
Antenna Orientat	ion:	Horizontal	Frequency Rang	ge:	Al	ove 10	3Hz	
EUT	Mode of Opera	ation:	Tr	ansmit A	A/C Mode			
Professional Testing Radiated Emissions, 3m E 1-11GHz Horizontal Polarity 90 80 80 70 80 40 40 30	Distance			orrected Peak Ro	ea ding		PROFESS	SIONAL ING
201G Operator: Eric Lifsey 18951'041017'RETxSpur'Ru	n03'ModeA C.til	F Mode: Transmit; Mode S Power: 14 VDC	requency	EUT: XPG-TI	R per: 18951-15	+	10G 110	G.

6.3.5 Transmit Mode S; Radiated Emissions, 1 to 11 GHz, Vertical Polarization

		Professional T	esting, EMI,	Inc.				
Test Method:		.4: 2014, American National S age Electrical and Electronic Ec				loise Emi	ssions	from
In accordance with:	FCC Part : Emissions	15.109 - Code of Federal Regu Limits	ılations Part 47, Subpar	t B - Unintentic	onal Radiato	ors, Radia	ated	
Section:	15.109							
Test Date(s):	4/10/20		EUT Serial #:	267				
Customer:		n Corporation	EUT Part #:	None				
Project Number:	18951-1	0	Test Technician:		Kohutek			
Purchase Order #:	8196		Supervisor:	Lisa A				
Equip. Under Test:	XPG-TR		Witness' Name:	Matt I	Hamilton			
	Radiated	Emissions Test Results Da	ata Sheet		Page:	1	of	1
EUT Line Voltage	e:	14 VDC	EUT Power Fr	equency:	N/A	N/A		
Antenna Orientati	on:	Vertical	Frequency	Range:	Al	ove 10	Hz	
EUT	Mode of (Operation:		Transmit	S Mode			
Professional Testing Radiated Emissions, 3m D 1-11GHz Vertical Polarity Mea	istance			Corrected Peak Re Licensed Limit	ading			_
80				× corvpeaks			PROFESS	IONAL
20 (((((((((((((((((((X			Ultraft)	
13 40 To The Head St.								

6.3.6 Transmit Mode S; Radiated Emissions, 1 to 11 GHz, Horizontal Polarization

	F	Professional Te	esting, EMI,	Inc.				
Test Method:		4, American National Sta ctrical and Electronic Equ				loise Em	issions	fron
n accordance with:	FCC Part 15.109 Emissions Limits	- Code of Federal Regula	ations Part 47, Subpa	rt B - Unintenti	ional Radiato	ors, Radi	ated	
Section:	15.109							
Test Date(s):	4/10/2017		EUT Serial #:	267				
Customer:	Sagetech Corp	poration	EUT Part #:	None				
Project Number:	18951-10		Test Technician:	: Dave	Kohutek			
Purchase Order #:	8196		Supervisor:	Lisa A	Arndt			
Equip. Under Test:	XPG-TR		Witness' Name:	Matt	Hamilton			
R	adiated Emiss	sions Test Results Da	ta Sheet		Page:	1	of	1
EUT Line Voltage:	14	VDC	EUT Power Fi	requency:	N/A	N/A		
Antenna Orientatio	n:	Horizontal	Frequency	Range:	Al	ove 10	3Hz	
EUT N	lode of Opera	tion:		Transmit	S Mode			
Professional Testing, Radiated Emissions, 3m Dist 1-11GHz Horizontal Polarity Med	ance			Corrected Peak R Licensed Limit	t ea din g			
90				× corhpeaks			PROFESS	SIONA
80 (m) V (m)			X				T E S T	l N
30 30 40 40 40 40 40 40 40 40 40 40 40 40 40	ta diga di katangkan di katangka Katangkan katangkan di katangkan							
~ YG Operator: Eric Lifsey 18951'041017'RE'TxSpur'Run0	2 'ModeS.til	For Mode: Transmit; Mode S Power: 14 VDC	requency	EUT: XPG-1 Project Num	FR ber: 18951-15		10G 110	G

6.3.7 Receive Mode; Radiated Emissions, 30 MHz to 1 GHz, Vertical Polarization

			Protes	sional Te	sting, El	VII, II	nc.				
Test Metho	od:		•	an National Star Electronic Equi					dio-Noise Em	issions 1	from
In accordar	nce with:		C Part 15.109 - Code of Federal Regulations Part 47, Subpart B - Unintentional Radiators, Radiated nissions Limits								
Section:		15.109									
Test Date(s	s):	4/10/2017			EUT Serial	#:		267			
Customer:		Sagetech C	orporation		EUT Part #:			None			
Project Nui	mber:	18951-10			Test Techn	ician:		Dave Kohut	tek		
Purchase O	rder #:	8196			Supervisor			Lisa Arndt			
Equip. Und	er Test:	XPG-TR			Witness' N	ame:		Matt Hamil	ton		
	F	Radiated Em	issions Tes	t Results Data	a Sheet			Pag	ge: 1	of	1
EUT L	ine Voltage	: 1	4 VDC		EUT Pow	ver Fre	quen	cy: N/	'A N/A		
Antenna	o Orientatio	on:	Vertic	al	Frequ	ency R	ange:		30MHz to	1GHz	
	EUT N	/lode of Ope	eration:					Receiving			
Frequency	Test	EUT	Antenna		Recorded	Corre	cted				
Measured	Distance	Direction	Height	Detector	Amplitude	Lev	rel .	Limit Level	Margin	Test Re	esults
(MHz)	(Meters)	(Degrees)	(Meters)	Function	(dBµV)	(dBμ\	//m)	(dBμV/m)	(dB)		
30	10	41	1	Quasi-peak	30.4	18.3	303	29.5	-11.2	Pas	SS
31.898	10	100	3.91	Quasi-peak	24.1	12.0)86	29.5	-17.4	Pa	SS
48.0469	10	180	2.48	Quasi-peak	32.7	12.9	944	29.5	-16.6	Pa	SS
241.957	10	232	1.57	Quasi-peak	27.9	16.	52	35.6	-19.1	Pa:	SS
253.309	10	110	1.34	Quasi-peak	27.7	17.6	544	35.6	-18.0	Pa	SS
903.111	10	207	2.57	Quasi-peak	21.2	26.	06	35.6	-9.5	Pa	SS
964.86	10	58	2.27	Quasi-peak	21	26.0)91	43.5	-17.4	Pa	SS
Radiated	sional Testing, Emissions, 10m D GHz Vertical Polarity	istance					∇ CorreCorre∇ Verific	i-peak Limit Level ceted Quasi-peak Read ceted Peak Value ed Low-PRF QP Readi		PROFESS T E S T	
Field Strength (dBp Vm)	×	alahore Marahama, sa yang ka		All a force is a state of the s	×	×	d state of the sta			××	
0 30M	D V.1	pm 1 mage	100M	Free	quency			VIII VDG 777		1G	}
Operator:	Dave Kohutek			le: Receiving				UT: XPG-TR 'roject Number: 18951	15		
19051 DE	B - Receiver_30M-10		EUTPow								

6.3.8 Receive Mode; Radiated Emissions, 30 MHz to 1 GHz, Horizontal Polarization

			Profes	sional Te	sting, El	MI, Inc.			
Test Metho	od:			an National Star Electronic Equi				adio-Noise Em	issions fror
In accordar	nce with:	Emissions Lin		Federal Regulat	ions Part 47, 9	Subpart B - Ur	intentional R	adiators, Radi	iated
Section:	_	15.109					,		
Test Date(s	s):	4/10/2017			EUT Serial	#:	267		
Customer:		Sagetech C	orporation		EUT Part #:		None		
Project Nur		18951-10			Test Techn		Dave Kohu	tek	
Purchase O		8196			Supervisor		Lisa Arndt		
Equip. Und	er Test:	XPG-TR			Witness' N	ame:	Matt Hami	Iton	
		Radiated Em	issions Tes	t Results Data	Sheet		Pa	ge: 1	of 1
EUT Li	ine Voltage	: 1	4 VDC		EUT Pow	ver Frequen	cy: N	/A N/A	
Antenna	Orientation of the Contraction o	on:	Horizoi	ntal	Frequ	ency Range:	1	30MHz to	1GHz
	EUT	Mode of Ope	eration:				Receiving		
Frequency Measured (MHz)	Test Distance (Meters)	EUT Direction (Degrees)	Antenna Height (Meters)	Detector Function	Recorded Amplitude (dBµV)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Test Resu
31.209	10	176	2.84	Quasi-peak	24.2	12.212	29.5	-17.3	Pass
34.5848	10	299	2.92	Quasi-peak	23.1	11.272	29.5	-18.2	Pass
45.5237	10	61	3.45	Quasi-peak	23.3	6.379	29.5	-23.1	Pass
54.7125	10	263	3.26	Quasi-peak	23.8	5.851	29.5	-23.6	Pass
251.741	10	250	2.17	Quasi-peak		13.783	35.6	-21.8	Pass
534.657	10	197	2.15	Quasi-peak		17.82	35.6	-17.8	Pass
879.454	10	326	1.41	Quasi-peak		25.284	35.6	-10.3	Pass
943.258	10	244	1.93	Quasi-peak	21.1	26.009	35.6	-9.6	Pass
Radiated 30MHz-16	sional Testing Emissions, 10m I GHz Horizontal Pola		S		× In the control of t	▽ Corre ─ Corre ▽ Verifi	peak Limit Level cted Quasi-peak Reac cted Peak Value ed Low-PRF QP Read Verification Limit		PROFESSIONA
10 0 30M	Dave Kohutek	V V		Free e: Receiving ar: 14VDC	quency		UT: XPG-TR roject Number: 1895	115	16

6.3.9 Receive Mode; Radiated Emissions, 1 to 11 GHz, Vertical Polarization

			Profess	sional Te	sting, EN	VII, Inc.				
Test Metho	od:		•	n National Star Electronic Equi				dio-Noise Em	nissions f	rom
In accordar	nce with:	FCC Part 15.1 Emissions Lim		ederal Regula	tions Part 47, S	Subpart B - Ur	intentional Ra	adiators, Radi	iated	
Section:		15.109					_			
Test Date(s	s):	4/10/2017			EUT Serial	# :	267			
Customer:		Sagetech Co	orporation		EUT Part #:		None			
Project Nur	mber:	18951-10			Test Techni	ician:	Dave Kohu	tek		
Purchase O	rder #:	8196			Supervisor:		Lisa Arndt			
Equip. Und	er Test:	XPG-TR			Witness' N	ame:	Matt Hamil	ton		
	ı	Radiated Em	issions Test	Results Dat	a Sheet		Pa	ge: 1	of	1
EUT Li	ine Voltage	: 1	4 VDC		EUT Pow	er Frequen	cy: N/	'A N/A		
Antenna	o Orientatio	n:	Vertic	al	Freque	ency Range:		Above 1	GHz	
	EUT N	Node of Ope	ration:				Receiving			
Frequency Measured	Test Distance	EUT Direction	Antenna Height	Detector Function	Recorded Amplitude	Corrected Level	Limit Level (dBµV/m)	Margin (dB)	Test Re	esults
(MHz)	(Meters)	(Degrees)	(Meters)		(dBμV)	(dBµV/m)	(45,417,)	(5.5)		
1033.69	3	97	1.23	Average	35.1	21.851	54.0	-32.1	Pas	SS
1132.13	3	199	3.42	Average	36.8	24.153	54.0	-29.8	Pas	SS
1322.74	3	143	2.66	Average	36.5	24.598	54.0	-29.4	Pas	SS
1792.59	3	174	3.31	Average	36	26.156	54.0	-27.8	Pas	SS
1919.81	3	153	1.7	Average	35.5	26.089	54.0	-27.9	Pas	SS
3804.99	3	256	3.01	Average	34.5	27.978	54.0	-26.0	Pas	SS
5786.67	3	175	1.15	Average	32.2	30.944	54.0	-23.0	Pas	SS
										_
						— Avera	ge Limit Level			\rightarrow
Profess	sional Testing,						g e Limit Lev el			otan
Profess Radiated	sional Testing, Emissions, 3m Dis ertical Polarity Measu	stance					g e Limit Lev el cted Average Reading			Z
Profess Radiated	Emissions, 3m Dis	stance				∇ Corre				1
Profess Radiated 1-6GHz Ve	Emissions, 3m Dis	stance				∇ Corre— Peak l	cted Average Reading		PROFESSI	ONAL
Profess Radiated 1-6GHz Ve	Emissions, 3m Dis	stance		_	·	∇ Corre— Peak l	cted Average Reading Limit Level		PROFESSI T E S T	ONAL N 6
Profess Radiated 1-6GHzVe 90 80	Emissions, 3m Dis	stance		_		∇ Corre— Peak l	cted Average Reading Limit Level		PROFESSI	ONAL N 6
Profess Radiated 1-6GHz Ve	Emissions, 3m Dis	stance				∇ Corre— Peak l	cted Average Reading Limit Level		PROFESSI	ONAL I N 6
Profess Radiated 1-6GHzVe 90 80	Emissions, 3m Dis	stance				∇ Corre— Peak l	cted Average Reading Limit Level		PROFESSI T E S T	ONAL N 6
Profess Radiated 1-6GHzVe 90 80	Emissions, 3m Dis	stance				∇ Corre— Peak l	cted Average Reading Limit Level		PROFESSI	ONAL IN 6
Profess Radiated 1-6GHzVe 90 80 (m/ 70 dgp) 41 50	Emissions, 3m Dis	stance				∇ Corre— Peak l	cted Average Reading Limit Level		PROFESSI T E S T	ONAL IN 6
Profess Radiated 1-6GHz Ve 90 80 (m/A ng p)	Emissions, 3m Dis	stance	Y Y			∇ Corre— Peak l	cted Average Reading Limit Level		PROFESSI	ONAL N 6
Profess Radiated 1-6GHz Ve 90 80 40 40 30	Emissions, 3m Dis	stance				∇ Corre— Peak l	cted Average Reading Limit Level		PROFESSI	ONAL N 6
Profess Radiated 1-6GHz Ve 90 80 (m/A ng p)	Emissions, 3m Dis	stance				∇ Corre— Peak l	cted Average Reading Limit Level		PROFESSI E S T	ONAL N 6
Profess Radiated 1-6GHz Ve 90 80 10 10 10 10 10 10 10 10 10 10 10 10 10	Emissions, 3m Dis	stance	V V		quency	∨ Corre — Peak l — Corre	cted Average Reading Limit Level		T E S T	ONAL N 6
Profess Radiated 1-6GHz Ve 90 80 10 60 10 10 10 10 10 10 10 18951_RE	Emissions, 3m Districted Polarity Measu	stance red Emissions	EUT Mode EUT Powe	: Receiving	quency	∨ Corre — Peak l — Corre	cted A verage Reading Limit Level cted Peak Reading		T E S T	ONAL N 6

6.3.10 Receive Mode; Radiated Emissions, 1 to 11 GHz, Horizontal Polarization

			Profess	sional Te	sting, EN	VII, Inc.			
Test Metho	od:		•	n National Star Electronic Equi				dio-Noise Em	nissions from
In accorda	nce with:	FCC Part 15.1 Emissions Lin		ederal Regulat	tions Part 47, S	Subpart B - Ur	nintentional Ra	adiators, Rad	iated
Section:		15.109							
Test Date(s	s):	4/10/2017			EUT Serial		267		
Customer:		Sagetech C	orporation		EUT Part #:		None		
Project Nu		18951-10			Test Techni		Dave Kohu	tek	
Purchase C		8196			Supervisor:		Lisa Arndt	lta.a	
Equip. Und	ier rest:	XPG-TR			Witness' N	ame:	Matt Hamil	iton	
	F	Radiated Em	issions Test	Results Data	a Sheet		Pa	ge: 1	of 1
EUT L	ine Voltage	: 1	4 VDC		EUT Pow	er Frequen	cy: N/	/A N/A	
Antenn	a Orientatio	on:	Horizor	ıtal	Freque	ency Range	:	Above 1	GHz
	EUT N	/lode of Ope	eration:				Receiving		
Frequency Measured (MHz)	Test Distance (Meters)	EUT Direction (Degrees)	Antenna Height (Meters)	Detector Function	Recorded Amplitude (dBµV)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Test Result
1124.37	3	48	3.02	Average	36.7	24.032	54.0	-29.9	Pass
1314.15	3	107	2.25	Average	36.4	24.522	54.0	-29.4	Pass
1895.64	3	183	3.11	Average	34.6	25.093	54.0	-28.9	Pass
1991.89	3	141	3.59	Average	35.3	26.076	54.0	-27.9	Pass
3076.32	3	102	2.79	Average	35.2	27.889	54.0	-26.1	Pass
5287.85	3	15	1.1	Average	32.9	30.336	54.0	-23.6	Pass
Radiated	sional Testing, Emissions, 3m Dis orizontal Polarity Mea	tance				∇ Corre— Peak	ge Limit Level cted A verage Reading Limit Level cted Peak Reading		PROFESSIONAL TESTING
30 20 10 G	<u> </u>	Y	Y	Free	quency	7	UT: XPG-TR	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	6G

7.0 Frequency Stability

7.1 Test Procedure

The EUT was placed into a temperature chamber and connected by cable to a spectrum analyzer; attenuation added if needed. On reaching each set point temperature, the EUT was allowed to soak until the internal temperature sensor stabilized. After soak time was satisfied, the EUT transmitter was powered on in transmit mode and the frequency was observed until it became stable; then the measurement of frequency was taken.

Operating voltage stability was also measured for selected extremes based on operating design.

The EUT was operated in a modulated mode.

7.2 Test Criteria

Table 7.2.1 Frequency Stability Criteria, 87.133; 2.1055(a)(1)						
Parameter: Frequency Tolerance						
1000 ppm or ±1,090,000 Hz for 1090 MHz Operating Frequency						

Table 7.2.2 Test Conditions, Temperatures
-30 C to 50 C and by 10 C steps

Table 7.2.3 Test Conditions, Voltage (From manufacturers specifications.)								
Low Voltage	10 VDC							
Nominal Voltage	14 VDC							
High Voltage	32 VDC							

7.3 Test Results

The EUT satisfies the requirement. Tabular results appear below.

7.3.1 Temperature

Condition	Freq	Deviation			
Temperature (C)	Reference Center Frequency (MHz)	Measured Frequency (MHz)	Calculated Deviation (Hz)		
-30	1090.000000	1089.938700	-61300		
-20	1090.000000	1090.083900	83900		
-10	1090.000000	1089.967300	-32700		
0	1090.000000	1089.931300	-68700		
10	1090.000000	1089.984400	-15600		
20	1090.000000	1089.970400	-29600		
30	1090.000000	1089.985000	-15000		
40	1090.000000	1089.966100	-33900		
50	1090.000000	1089.996600	-3400		
Max Deviation	83900				
Min Deviation (Hz) -68700					

7.3.2 Voltage

Condition	Voltage	Frequency		
Voltage Extreme	Voltage (V DC)	Reference Frequency (MHz)	Measured Frequency (MHz)	Calculated Deviation (Hz)
Low	10.00	1090.000000	1090.000300	300
Nominal	14.00	1090.000000	1089.946000	-54000
High	32.00	1090.000000	1089.996000	-4000

Equipment Lists 8.0

Table 8.1 Equipment List; Power, Bandwidth, Spurious Conducted, and Mask					
Asset #	Manufacturer	Model #	Description	Calibration Due	
2295	Agilent	E4440A	Spectrum Analyzer	30 Sep 2017	
0835	Narda	3293-1	Forward Power Coupler -10 dB	8 Oct 2018	
A105	Narda	768-20	Attenuator, 20 W, 20 dB	5 Oct 2018	
0856	Narda	702-60	Step Attenuator 60 dB in 10 dB Steps	7 Oct 2018	
0472	Tektronix	THS730A	Scope/DMM	15 Nov 2017	
1831	НР	6622A	Adjustable DC Power Supply	CIU	

Table 8.2 Equipment List; Frequency Stability (In addition to equipment listed in 8.1.)					
Asset #	Manufacturer	Model #	Description	Calibration Due	
2134	Tenny	TPC T2C	Temperature Chamber	12 Oct 2017	
C247	Pasternack	RG type	Coaxial Cable, double shielded	CNR	

Table 8.3 Equipment List; Radiated Emissions

Table 8.	Table 8.3 Equipment List; Radiated Emissions							
		Radiate	d Emissions Test Equipment List					
Til	Tile! Software Version: 4.2.A, May 23, 2010, 08:38:52 AM							
Test Profile: 2016 RE_ClassB - Boresite+Mast_LowPRF_032117.til								
Asset #	Manufacturer	Model	Equipment Nomenclature Serial Number		Calibration Due Date			
1509A	Braden	N/A	TDK 10M Chamber, NSA < 1 GHz	DAC-012915-005	7/10/2017			
1890	HP	8447F	Preamp/Amp, 9kHz-1300MHz, 28/25dB	3313A05298	2/1/2018			
1937	Agilent	E4440A	Spectrum Analyzer, 3 Hz - 26.5 GHz, Opt. AYZ	MY44808298	11/15/2017			
1926	ETS-Lindgren	3142D	Antenna, Biconilog, 26 MHz - 6 GHz	135454	3/7/2019			
C027D	PTI	None	Relay	none	N/A			
1327	EMCO	1050	Controller, Antenna Mast	none	N/A			
0942	EMCO	11968D	Turntable, 4ft.	9510-1835	N/A			
1969	HP	11713A	Attenuator/Switch Driver	3748A04113	N/A			
1509B	Braden	N/A	TDK 10M Chamber, VSWR > 1 GHz	DAC-012915-005	6/19/2017			
2004	Miteq	AFS44-00101800- 2S-10P-44	Amplifier, 40dB, .1-18GHz	0	1/11/2018			
C030	none	none	Cable Coax, N-N, 30m	none	10/1/2017			
1325	EMCO	1050	Controller, Antenna Mast	9003-1461	N/A			
1780	ETS-Lindgren	3117	Antenna, Double Ridged Guide Horn, 1 - 18 GHz	110313	3/15/2019			
A114	none	none	Attenuator, SMA, 10dB, 1W, DC- 18GHz	none	10/4/2018			
846	SMT	41241	Filter, High Pass, 1.5 GHz	101	4/6/2018			
2205	Astron	VS-35M	Power Supply	204100014	N/A			

Appendix: Policy, Rationale, and Evaluation of EMC Measurement Uncertainty

All uncertainty calculations, estimates and expressions thereof shall be in accordance with NIST policy. Since PTI operates in accordance with NIST (NVLAP) Handbook 150-11: 2007, all instrumentation having an effect on the accuracy or validity of tests shall be periodically calibrated or verified traceable to national standards by a competent calibration laboratory. The certificates of calibration or verification on this instrumentation shall include estimates of uncertainty as required by NIST Handbook 150-11.

1. Rationale and Summary of Expanded Uncertainty.

Each piece of instrumentation at PTI that is used in making measurements for determining conformance to a standard (or limit), shall be assessed to evaluate its contribution to the overall uncertainty of the measurement in which it is used. The assessment of each item will be based on either a type A evaluation or a type B evaluation. Most of the evaluations will be type B, since they will be based on the manufacturer's statements or specifications of the calibration tolerances, or uncertainty will be stated along with a brief rationale for the type of evaluation and the resulting stated uncertainties.

The individual uncertainties included in the combined standard uncertainty for a specific test result will depend on the configuration in which the item of instrumentation is used. The combination will always be based on the law of propagation of uncertainty. Any systematic effects will be accommodated by including their uncertainties, in the calculation of the combined standard uncertainty; except that if the direction and amount of the systematic effect cannot be determined and separated from its uncertainty, the whole effect will be treated as uncertainty and combined along with the other elements of the test setup.

Type A evaluations of standard uncertainty will usually be based on calculating the standard deviation of the mean of a series of independent observations, but may be based on a least-squares curve fit or the analysis of variance for unusual situations. Type B evaluations of standard uncertainty will usually be based on manufacturer's specifications, data provided in calibration reports, and experience. The type of probability distribution used (normal, rectangular, a priori, or u-shaped) will be stated for each Type B evaluation.

In the evaluation of the uncertainty of each type of measurement, the uncertainty caused by the operator will be estimated. One notable operator contribution to measurement uncertainty is the manipulation of cables to maximize the measured values of radiated emissions. The operator contribution to measurement uncertainty is evaluated by having several operators independently repeat the same test. This results in a Type A evaluation of operator-contributed measurement uncertainty.

A summary of the expanded uncertainties of PTI measurements is shown as Table 1. These are the worst-case uncertainties considering all operative influence factors.

Table 1: Summary of Measurement Uncertainties for Site 45

Type of Measurement	Frequency Range	Meas. Dist.	Expanded Uncertainty U, dB (k=2)
Mains Conducted Emissions	150 kHz to 30 MHz	N/A	2.9
Telecom Conducted Emissions	150 kHz to 30 MHz	N/A	2.8
Radiated Emissions	30 to 1,000 MHz	10 m	4.8
Naulateu Elliissiolis	1 to 18 GHz	3 m	5.7

End of Report

(This page intentionally left blank.)