



SUPPLIER'S DECLARATION OF CONFORMITY

FCC Part 15B

Manufacturer Name and Address:

Samsung Electronics Co., Ltd.

129, Samsung-ro,

Yeongtong-gu, Suwon-si

Gyeonggi-do, 16677, Korea

Date of Testing:

12/27/2017 - 2/2/2018

Test Site/Location:

PCTEST Lab. Columbia, MD, USA

Test Report Serial No.:

1M1712270336-04.A3L

MODEL:

SFG-D1100

MANUFACTURER:

Samsung Electronics Co., Ltd.

Test Report Type:

Supplier's Declaration of Conformity

EUT Type:

Outdoor Customer Premise Equipment (CPE)

FCC Classification:

Part 15 Class B Digital Device

FCC Rule Part(s):

FCC Part 15 Subpart B, Part 2.906 (SDoC)

Test Procedure(s):

ANSI C63.4-2014

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and has been tested in accordance with the measurement procedures specified in ANSI C63.4-2014 (See Test Report). The results shown herein are also deemed satisfactory evidence of compliance with Innovation, Science, and Economic Development Canada's Interference-Causing Equipment Standard, ICES-003. These measurements were performed with no deviation from the standards. Test results reported herein relate only to the item(s) tested.

I authorize and attest to the accuracy of data. All measurements reported herein 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.



Randy Ortanez
President







Model: SFG-D1100	 MEASUREMENT REPORT 	Approved by: Quality Manager
Test Report S/N: 1M1712270336-04.A3L	Test Dates: 12/27/2017 - 2/2/2018	EUT Type: Outdoor Customer Premise Equipment (CPE)
		Page 1 of 22

TABLE OF CONTENTS

1.0	INTRODUCTION.....	3
1.1	Scope.....	3
1.1	PCTEST Test Location	3
1.2	Test Facility / Accreditations	3
2.0	PRODUCT INFORMATION	4
2.1	Equipment Description.....	4
2.2	Test Configuration	4
2.3	EMI Suppression Device(s)/Modifications.....	4
3.0	DESCRIPTION OF TESTS	5
3.1	Evaluation Procedure	5
3.2	AC Line Conducted Emissions	5
3.3	Radiated Emissions	6
3.4	Environmental Conditions	6
4.0	SAMPLE CALCULATIONS	7
4.1	Conducted Emission Measurement Sample Calculation	7
4.2	Radiated Emission Measurement Sample Calculation	7
5.0	MEASUREMENT UNCERTAINTY	8
6.0	TEST EQUIPMENT CALIBRATION DATA.....	9
7.0	TEST DATA	10
7.1	Summary	10
7.2	Radiated Measurement Data	11
7.3	Line Conducted Measurement Data	17
8.0	CONCLUSION	20
9.0	INFORMATION REGARDING SDOC AND RESPONSIBLE PARTY	21
9.1	Responsible Party.....	21
9.2	Limitation on Supplier's Declaration of Conformity, FCC §2.1072	21
9.3	Identification, FCC §2.1074	22
9.4	Compliance information, FCC §2.1077	22

Model: SFG-D1100		MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1M1712270336-04.A3L	Test Dates: 12/27/2017 - 2/2/2018	EUT Type: Outdoor Customer Premise Equipment (CPE)	Page 2 of 22	

1.0 INTRODUCTION

1.1 Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and Innovation, Science and Economic Development Canada.



1.1 PCTEST Test Location

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility located at 7185 Oakland Mills Road, Columbia, MD 21046. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014.

1.2 Test Facility / Accreditations

Measurements were performed at PCTEST Engineering Lab located in Columbia, MD 21046, U.S.A.

- PCTEST is an ISO 17025-2005 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.01 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC 17065-2012 by A2LA (Certificate number 2041.03) in all scopes of FCC Rules and ISSED Standards (RSS).
- PCTEST facility is a registered (2451B) test laboratory with the site description on file with ISSED.

Model: SFG-D1100		MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1M1712270336-04.A3L	Test Dates: 12/27/2017 - 2/2/2018	EUT Type: Outdoor Customer Premise Equipment (CPE)	Page 3 of 22	

2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Outdoor Customer Premise Equipment (CPE) Model: SFG-D1100**. The test data contained in this report pertains only to the emissions due to the digital circuitry of the EUT.

Test Device Serial No.: N/A



2.2 Test Configuration

The EUT was connected to a laptop PC via ethernet and USB connections. Since the EUT is the host, all its ports are populated with either an accessory or another termination typical of actual usage. All equipment is placed on the test table top and arranged in a typical configuration in accordance with ANSI C63.4-2014.

For more information, please see Section 7.0 for test data and the test setup photos document for the test setup photographs.

2.3 EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and no modifications were made during testing.

Model: SFG-D1100		MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1M1712270336-04.A3L	Test Dates: 12/27/2017 - 2/2/2018	EUT Type: Outdoor Customer Premise Equipment (CPE)	Page 4 of 22	

3.0 DESCRIPTION OF TESTS

3.1 Evaluation Procedure

The measurement procedure described in the American National Standard for Methods of Measurement of Radio-Noise Emission from Low-Voltage Electrical and Electronic Equipment in the Range of 9kHz to 40GHz (ANSI C63.4-2014) was used in the measurement of radiated and conducted emissions from the EUT.

Deviation from measurement procedure.....None



3.2 AC Line Conducted Emissions

The line-conducted facility is located inside a 10'x16'x9' shielded enclosure. The shielded enclosure is manufactured by ETS Lindgren RF Enclosures. The shielding effectiveness of the shielded room is in accordance with MIL-Std-285 or NSA 65-5. A 1m x 1.5m wooden table 80cm high is placed 40cm away from the vertical wall and 80cm away from the sidewall of the shielded room. Two 10kHz-30MHz, 50Ω/50μH Line-Impedance Stabilization Networks (LISNs) are bonded to the shielded room floor. Power to the LISNs is filtered by external high-current high-insertion loss power line filters. The external power line filter is an ETS Lindgren Model LPRX-4X30 (100dB Attenuation, 14kHz-18GHz) and the two EMI/RFI filters are ETS Lindgren Model LRW-2030-S1 (100dB Minimum Insertion Loss, 14kHz – 10GHz). These filters attenuate ambient signal noise from entering the measurement lines. These filters are also bonded to the shielded enclosure.

The EUT is powered from one LISN and the support equipment is powered from the second LISN. If the EUT is a DC-powered device, power will be derived from the source power supply it normally will be powered from and this supply line(s) will be connected to the second LISN. All interconnecting cables more than 1 meter were shortened to a 1 meter length by non-inductive bundling (serpentine fashion) and draped over the back edge of the test table. All cables were at least 40cm above the horizontal reference groundplane. Power cables for support equipment were routed down to the second LISN while ensuring that that cables were not draped over the second LISN.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the spectrum analyzer and exploratory measurements were made to determine the frequencies producing the maximum emission from the EUT. The spectrum was scanned from 150kHz to 30MHz with a spectrum analyzer. The detector function was set to peak mode for exploratory measurements while the bandwidth of the analyzer was set to 10kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Once the worst case emissions have been identified, the one EUT cable configuration/arrangement and mode of operation that produced these emissions is used for final measurements on the same test site. The analyzer is set to CISPR quasi-peak and average detectors with a 9kHz resolution bandwidth for final measurements.

Line conducted emissions test results are shown in Section 7.3. Automated test software was used to perform the AC line conducted emissions testing. Automated measurement software utilized is Rohde & Schwarz EMC32, Version 8.51.0.

Model: SFG-D1100	 MEASUREMENT REPORT 		Approved by: Quality Manager
Test Report S/N: 1M1712270336-04.A3L	Test Dates: 12/27/2017 - 2/2/2018	EUT Type: Outdoor Customer Premise Equipment (CPE)	Page 5 of 22

3.3 Radiated Emissions



The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. The test site inside the chamber is a 6m x 5.2m elliptical, obstruction-free area in accordance with Clause 5, Figure 5.7 of ANSI C63.4-2014. A raised turntable is used for radiated measurement. It is a continuously rotatable, remote-controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. Absorbers are arranged on the floor between the turn table and the antenna mast in such a way as to maximize the reduction of reflections for measurements above 1GHz. An 80cm tall test table made of Styrodur is placed on top of the turn table.

For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30MHz up to the upper frequency shown in 15.33(b)(1) depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up was placed on top of the 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, mode of operation, turntable azimuth, and receive antenna height was noted for each frequency found.

Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions.

3.4 Environmental Conditions

The temperature is controlled within range of 15°C to 35°C. The relative humidity is controlled within range of 10% to 75%. The atmospheric pressure is monitored within the range 86-106kPa (860-1060mbar).

Model: SFG-D1100		MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1M1712270336-04.A3L	Test Dates: 12/27/2017 - 2/2/2018	EUT Type: Outdoor Customer Premise Equipment (CPE)	Page 6 of 22	

4.0 SAMPLE CALCULATIONS

4.1 Conducted Emission Measurement Sample Calculation

@ 20.3 MHz

Class B limit = 60.0 dB μ V (Quasi-peak limit)
Reading = - 57.8 dBm (calibrated quasi-peak level)
Convert to dB μ V = - 57.8 + 107 = 49.2 dB μ V

Margin = 49.2 - 60.0 = - 10.8 dB
= 10.8 dB below limit

4.2 Radiated Emission Measurement Sample Calculation



@ 66.7 MHz

Class B limit = 100 μ V/m = 40.0 dB μ V/m
Reading = - 76.0 dBm (calibrated level)
Convert to dB μ V = - 76.0 + 107 = 31.0 dB μ V
Antenna Factor + Cable Loss = 5.8 dB/m
Total = 36.8 dB μ V/m

Margin = 36.8 - 40.0 = - 3.2 dB
= 3.2 dB below limit

Note:



Level [dB μ V] = 20 log₁₀ (Level [μ V/m])
Level [dB μ V] = Level [dBm] + 107

Model: SFG-D1100		MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1M1712270336-04.A3L	Test Dates: 12/27/2017 - 2/2/2018	EUT Type: Outdoor Customer Premise Equipment (CPE)		Page 7 of 22

5.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4-2014. All measurement uncertainty values are shown with a coverage factor of $k = 2$ to indicate a 95% level of confidence. The measurement uncertainty shown below meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Contribution	Expanded Uncertainty (\pm dB)
Conducted Disturbance	3.09
Radiated Disturbance (<1GHz)	4.98
Radiated Disturbance (>1GHz)	5.07



Model: SFG-D1100		MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1M1712270336-04.A3L	Test Dates: 12/27/2017 - 2/2/2018	EUT Type: Outdoor Customer Premise Equipment (CPE)		Page 8 of 22

6.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST). Measurements antennas used during testing were calibrated in accordance to the requirements of ANSI C63.5-2017.

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
-	RE1	Radiated Emissions Cable Set (UHF/EHF)	6/21/2017	Annual	6/21/2018	RE1
Agilent	N9038A	MXE EMI Receiver	4/26/2017	Annual	4/26/2018	MY51210133
Agilent	N9030A	PXA Signal Analyzer (26.5GHz)	8/28/2017	Annual	8/28/2018	MY49432391
Com-Power	AL-130	9kHz - 30MHz Loop Antenna	10/10/2017	Biennial	10/10/2019	121034
ETS-Lindgren	3816/2NM	Line Impedance Stabilization Network	12/27/2016	Biennial	12/27/2018	114451
Pasternack	NMLC-1	Line Conducted Emissions Cable (NM)	5/31/2017	Annual	5/31/2018	NMLC-1
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	7/31/2017	Annual	7/31/2018	100348
Rohde & Schwarz	TS-PR8	Preamplifier-Antenna SYS; 30MHz-8GHz	10/19/2017	Annual	10/19/2018	102324
Seekonk	NC-100	Torque Wrench 5/16", 8" lbs	3/2/2016	Biennial	3/2/2018	N/A
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	3/14/2016	Biennial	3/14/2018	A051107

Table 6-1. Annual Test Equipment Calibration Schedule

Model: SFG-D1100	 MEASUREMENT REPORT 		Approved by: Quality Manager
Test Report S/N: 1M1712270336-04.A3L	Test Dates: 12/27/2017 - 2/2/2018	EUT Type: Outdoor Customer Premise Equipment (CPE)	Page 9 of 22

7.0 TEST DATA



7.1 Summary

Test Date(s): 12/27/2017 - 2/2/2018

Test Engineer: Tapas Misra

FCC Part 15 Section	Description	Result
15.107	Conducted Emissions	PASS
15.109	Radiated Emissions	PASS

Table 7-1. Summary of Test Results

Model: SFG-D1100		MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1M1712270336-04.A3L	Test Dates: 12/27/2017 - 2/2/2018	EUT Type: Outdoor Customer Premise Equipment (CPE)		Page 10 of 22

7.2 Radiated Measurement Data

§15.109; ICES-003 (6.2)

Test Overview and Limit

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at maximum power and at the appropriate frequencies. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

All emissions must not exceed the limits shown in Table 7-2 per Section 15.109 and ICES-003 (6.2).

Frequency [MHz]	Field Strength Limit [μV/m]
30 – 88	100
88 – 216	150
216 – 960	200
> 960	500

Table 7-2. 3-Meter Radiated Limits (Section 15.109)

Test Procedures Used

ANSI C63.4-2014



Test Settings

Quasi-Peak Field Strength Measurements

1. Analyzer frequency set to the frequency of the radiated spurious emission of interest
2. RBW = 120kHz (for emissions from 30MHz – 1GHz)
3. Detector = quasi-peak
4. Sweep time = auto couple
5. Trace mode = max hold
6. Trace was allowed to stabilize

Test Setup

The EUT and measurement equipment were set up as shown test setup photos provided.

Model: SFG-D1100		MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1M1712270336-04.A3L	Test Dates: 12/27/2017 - 2/2/2018	EUT Type: Outdoor Customer Premise Equipment (CPE)		Page 11 of 22

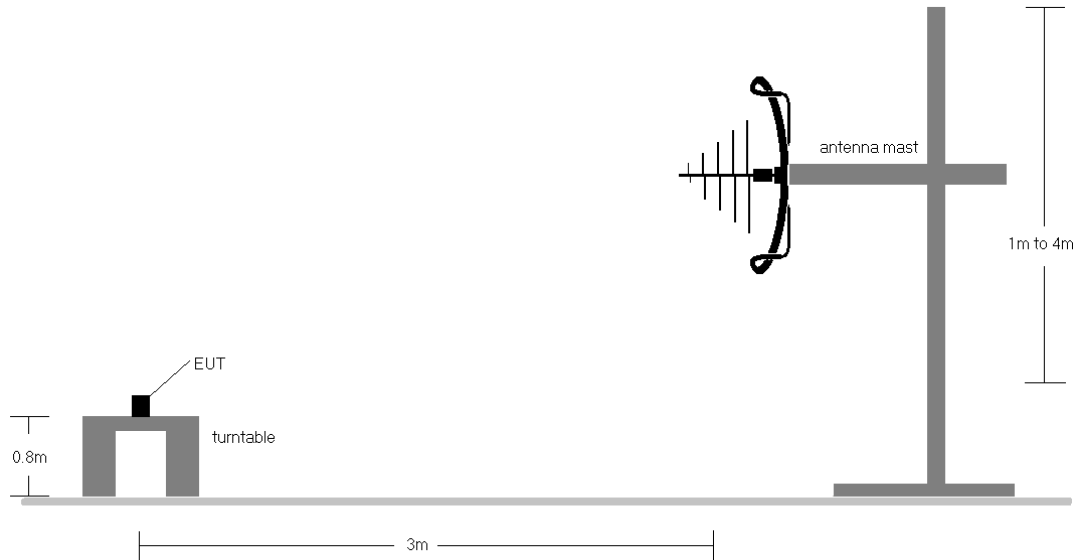




Figure 7-1. Radiated Test Setup

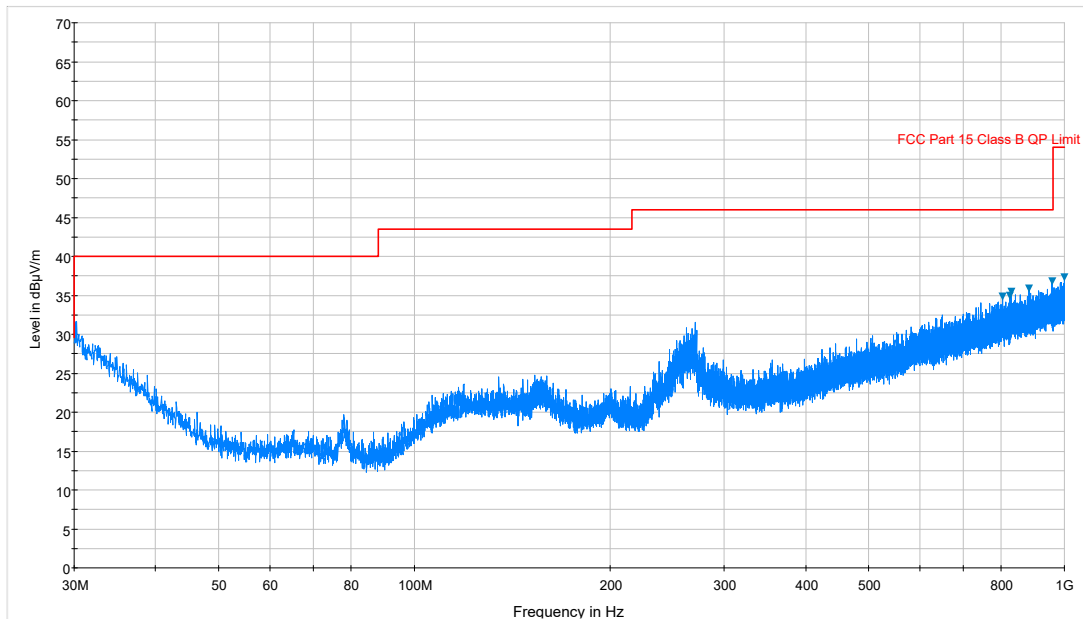
Test Notes

1. All modes of operation were investigated and the worst-case emissions are reported.
2. Radiated emissions were measured from 30MHz –18GHz to ensure that the provisions of 15.33(b)(1) are satisfied with respect to the upper frequency scanning range.
3. The radiated limits for unintentional radiators at a distance of 3 meters are used in the table above, as specified in 15.109(a).
4. All readings are calibrated by a signal generator with accuracy traceable to the National Institute of Standards and Technology (NIST).
5. AFCL (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB). The gain of a pre-amplifier is typically also included in the AFCL.
6. Level (dB μ V/m) = Analyzer Reading (dBm) + AFCL (dB/m) + 107
7. Margin (dB) = Field strength (dB μ V/m) – Limit (dB μ V/m)
8. Measurements are made using a CISPR quasi-peak detector with a 120kHz resolution bandwidth. Above 1GHz, peak measurements are made using a peak detector with a resolution bandwidth of 1MHz and a video bandwidth of 3MHz and average measurements are made with a RMS detector using a resolution bandwidth of 1MHz and a video bandwidth of 3MHz.
9. Calibrated linearly polarized broadband and horn antennas were used for measurements below and above 1GHz, respectively. For measurements made below 1GHz, the results recorded using the broadband antenna are known to correlate with the results obtained by using a tuned dipole with an acceptable degree of accuracy. The VSWR for the measurement antennas was found to be less than 2:1.
10. Calibrated low-loss microwaves cables and broadband amplifiers are used.

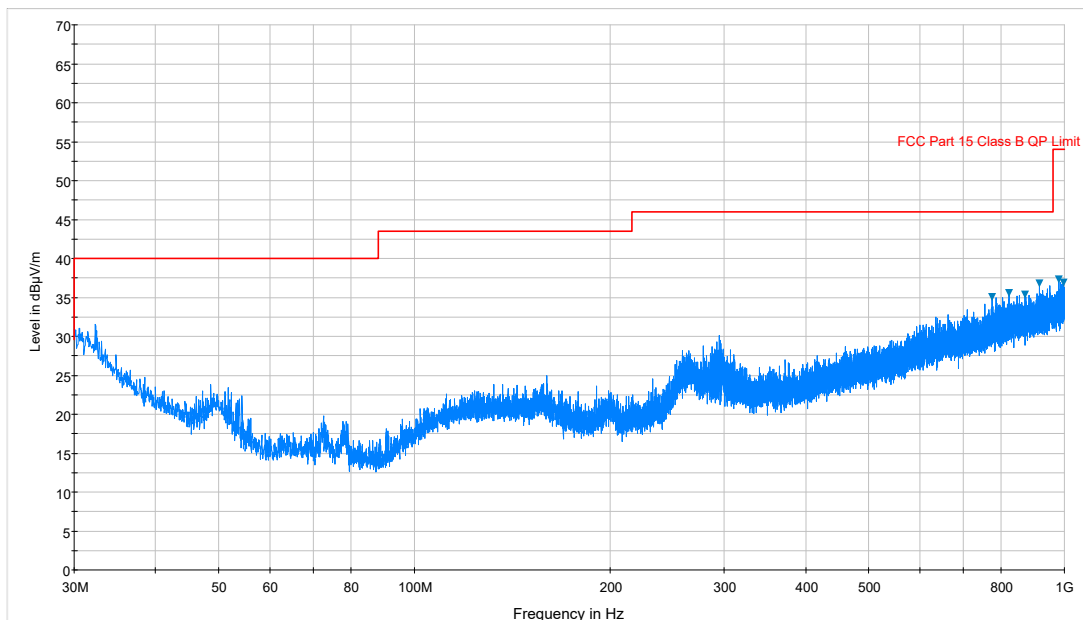
Sample Calculation

- Field Strength Level [dB μ V/m] = Analyzer Level [dBm] + 107 + AFCL [dB/m]



Model: SFG-D1100		MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1M1712270336-04.A3L	Test Dates: 12/27/2017 - 2/2/2018	EUT Type: Outdoor Customer Premise Equipment (CPE)		Page 12 of 22



Plot 7-1. Radiated Spurious Emissions Below 1GHz (Ant. Pol. H)



Plot 7-2. Radiated Spurious Emissions Below 1GHz (Ant. Pol. V)



Model: SFG-D1100		MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1M1712270336-04.A3L	Test Dates: 12/27/2017 - 2/2/2018	EUT Type: Outdoor Customer Premise Equipment (CPE)		Page 13 of 22

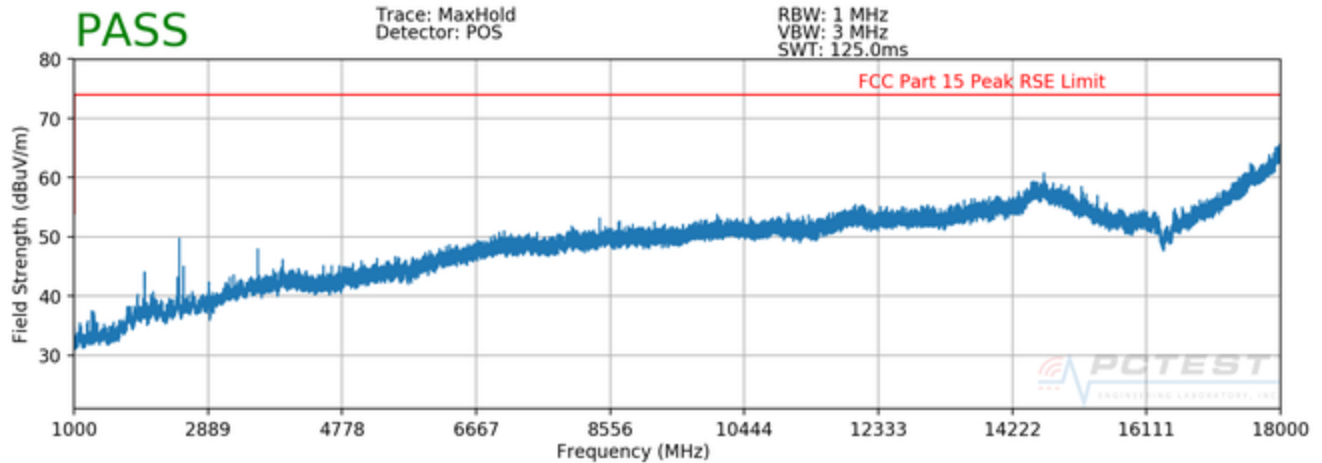
Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
79.72	Quasi-Peak	H	385	27	-71.58	-22.88	12.54	40.00	-27.46
268.49	Quasi-Peak	H	158	330	-62.17	-15.97	28.86	46.02	-17.16
360.00	Quasi-Peak	H	397	346	-71.14	-14.35	21.51	46.02	-24.51
748.82	Quasi-Peak	H	228	366	-73.43	-8.10	25.47	46.02	-20.55

Table 7-3. Radiated Measurements Below 1GHz at 3-meters (Ant. Pol. H)

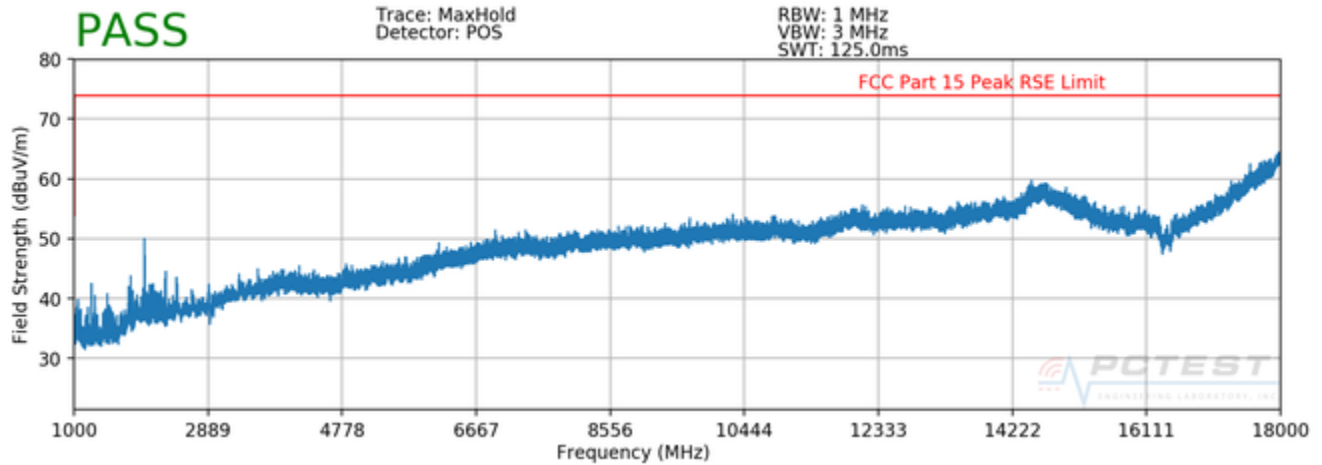
Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
50.77	Quasi-Peak	V	115	39	-59.87	-22.67	24.46	40.00	-15.54
79.06	Quasi-Peak	V	104	152	-67.82	-22.88	16.30	40.00	-23.70
360.01	Quasi-Peak	V	228	258	-71.89	-14.35	20.76	46.02	-25.26

Table 7-4. Radiated Measurements Below 1GHz at 3-meters (Ant. Pol. V)

Model: SFG-D1100	 MEASUREMENT REPORT 		Approved by: Quality Manager
Test Report S/N: 1M1712270336-04.A3L	Test Dates: 12/27/2017 - 2/2/2018	EUT Type: Outdoor Customer Premise Equipment (CPE)	Page 14 of 22



Plot 7-3. Radiated Spurious Emissions 1 - 18GHz (Ant. Pol. H)



Plot 7-4. Radiated Spurious Emissions 1 - 18GHz (Ant. Pol. V)



Model: SFG-D1100	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1712270336-04.A3L	Test Dates: 12/27/2017 - 2/2/2018	EUT Type: Outdoor Customer Premise Equipment (CPE)		Page 15 of 22

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
1994.72	Peak	H	196	175	-55.22	-4.78	47.00	73.98	-26.98
1994.72	Avg	H	196	175	-73.89	-4.78	28.33	53.98	-25.65
2457.53	Peak	H	134	310	-58.11	-3.23	45.66	73.98	-28.32
2457.53	Avg	H	134	310	-63.31	-3.23	40.46	53.98	-13.52
2590.89	Peak	H	131	308	-57.48	-3.03	46.49	73.98	-27.49
2590.89	Avg	H	131	308	-74.99	-3.03	28.98	53.98	-25.00
14663.37	Peak	H	325	147	-62.35	18.27	62.92	73.98	-11.06
14663.37	Avg	H	325	147	-75.63	18.27	49.64	53.98	-4.34

Table 7-5. Radiated Measurements 1 - 18GHz at 3-meters (Ant. Pol. H)

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
1800.00	Peak	V	118	282	-56.76	-5.63	44.61	73.98	-29.36
1800.00	Avg	V	118	282	-67.02	-5.63	34.35	53.98	-19.62
1992.51	Peak	V	155	207	-46.97	-4.77	55.26	73.98	-18.72
1992.51	Avg	V	155	207	-64.16	-4.77	38.07	53.98	-15.91
14529.59	Peak	V	324	224	-62.93	17.35	61.42	73.98	-12.56
14529.59	Avg	V	324	224	-75.46	17.35	48.89	53.98	-5.09

Table 7-6. Radiated Measurements 1 - 18GHz at 3-meters (Ant. Pol. H)

Model: SFG-D1100		MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1M1712270336-04.A3L	Test Dates: 12/27/2017 - 2/2/2018	EUT Type: Outdoor Customer Premise Equipment (CPE)		Page 16 of 22

7.3 Line Conducted Measurement Data

§15.107; ICES-003 (6.1)

Test Overview and Limit

All AC line conducted spurious emissions are measured with a receiver connected to a grounded LISN while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates and modes were investigated for conducted spurious emissions. Only the conducted emissions of the configuration that produced the worst-case emissions are reported in this section.

All conducted emissions must not exceed the limits shown in the table below per Section 15.107 and ICES-003 (6.1).

Frequency of emission (MHz)	Conducted Limit (dBμV)	
	Quasi-peak	Average
0.15 – 0.5	66 to 56*	56 to 46*
0.5 – 5	56	46
5 – 30	60	50

Table 7-7. Conducted Limits

*Decreases with the logarithm of the frequency.

Test Procedures Used

ANSI C63.4-2014



Test Settings

Quasi-Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the spurious emission of interest
2. RBW = 9kHz (for emissions from 150kHz – 30MHz)
3. Detector = quasi-peak
4. Sweep time = auto couple
5. Trace mode = max hold
6. Trace was allowed to stabilize

Average Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the spurious emission of interest
2. RBW = 9kHz (for emissions from 150kHz – 30MHz)
3. Detector = RMS
4. Sweep time = auto couple
5. Trace mode = max hold
6. Trace was allowed to stabilize



Model: SFG-D1100	 MEASUREMENT REPORT 		Approved by: Quality Manager
Test Report S/N: 1M1712270336-04.A3L	Test Dates: 12/27/2017 - 2/2/2018	EUT Type: Outdoor Customer Premise Equipment (CPE)	Page 17 of 22

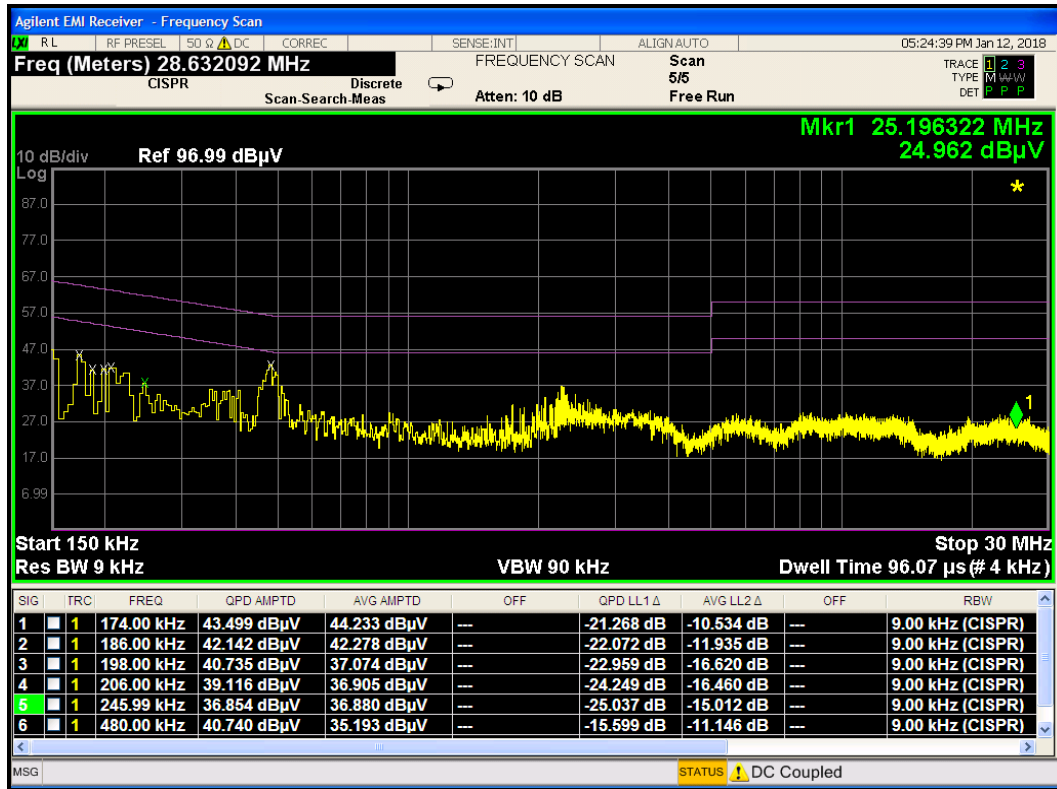
Test Setup

The EUT and measurement equipment were set up as shown in the test setup photos provided.

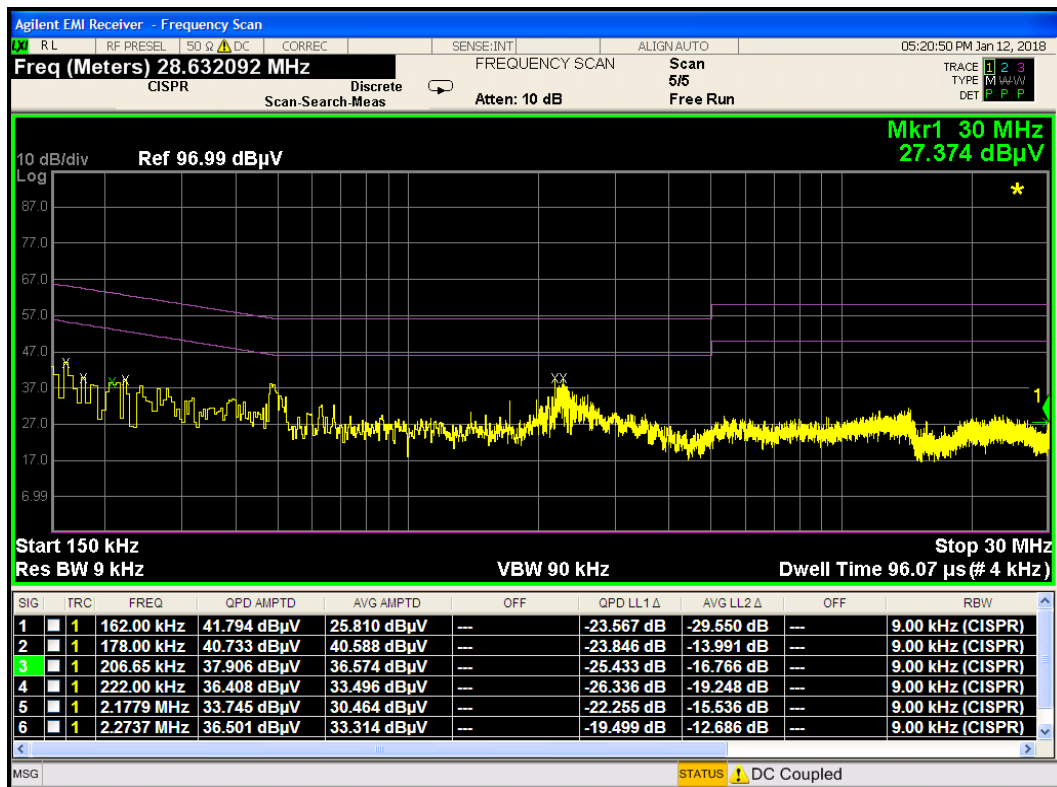
Test Notes

1. All Modes of operation were investigated and the worst-case emissions are reported.
2. The limit for Class B device(s) from 150kHz to 30MHz are specified in Section 15.107 and ICES-003.
3. L1 = Phase; N = Neutral
4. $\text{Corr. (dB)} = \text{Cable loss (dB)} + \text{LISN insertion factor (dB)}$
5. $\text{QP/AV Level (dB}\mu\text{V)} = \text{QP/AV Reading (dB}\mu\text{V)} + \text{Factor (dB)}$
6. $\text{Margin (dB)} = \text{QP/AV Limit (dB}\mu\text{V)} - \text{QP/AV Level (dB}\mu\text{V)}$
7. Traces shown in plot are made using a peak detector.
8. Deviations to the Specifications: None.



Model: SFG-D1100		MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1M1712270336-04.A3L	Test Dates: 12/27/2017 - 2/2/2018	EUT Type: Outdoor Customer Premise Equipment (CPE)	Page 18 of 22	



Plot 7-5. Line Conducted Plot (L1)





Plot 7-6. Line Conducted Plot (N)

Model: SFG-D1100	<div>MEASUREMENT REPORT<div></div></div>		Approved by: Quality Manager
Test Report S/N: 1M1712270336-04.A3L	Test Dates: 12/27/2017 - 2/2/2018	EUT Type: Outdoor Customer Premise Equipment (CPE)	Page 19 of 22

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Outdoor Customer Premise Equipment (CPE) Model: SFG-D1100** has been verified to comply with the requirements specified in §15.107 and §15.109 of the FCC rules and ICES-003 of the Innovation, Science, and Economic Development Canada rules.

Model: SFG-D1100		MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1M1712270336-04.A3L	Test Dates: 12/27/2017 - 2/2/2018	EUT Type: Outdoor Customer Premise Equipment (CPE)	Page 20 of 22	

9.0 INFORMATION REGARDING SDOC AND RESPONSIBLE PARTY

9.1 Responsible Party

Per FCC §2.909(b), for equipment subject to a Supplier's Declaration of Conformity, the party responsible for the compliance of the equipment with the applicable standards is set forth as follows:

- (1) The **manufacturer** or, if the equipment is assembled from individual component parts and the resulting system is subject to authorization under Supplier's Declaration of Conformity, the **assembler**.
- (2) If the equipment by itself, or, a system is assembled from individual parts and the resulting system is subject to Supplier's Declaration of Conformity and that equipment or system is imported, the **importer**.
- (3) **Retailers or original equipment manufacturers** may enter into an agreement with the responsible party designated in paragraph (b)(1) or (b)(2) of this section to assume the responsibilities to ensure compliance of equipment and become the new responsible party.
- (4) If the radio frequency equipment is modified by any party not working under the authority of the responsible party, the party performing the modifications, if located within the U.S., or the importer, if the equipment is imported subsequent to the modifications, becomes the new responsible party.



The responsible party for equipment subject to the SDoC must be located in the United States.

If, because of modifications performed subsequent to authorization, a new party becomes responsible for ensuring that a product complies with the technical standards and the new party does not obtain a new equipment authorization, the equipment shall be labeled, following the specifications in §2.925(d), with the following: "This product has been modified by [insert name, address and telephone number or internet contact information of the party performing the modifications]."

In the case of transfer of control of equipment, as in the case of sale or merger of the responsible party, the new entity shall bear the responsibility of continued compliance of the equipment.

9.2 Limitation on Supplier's Declaration of Conformity, FCC §2.1072

- (a) Supplier's Declaration of Conformity (SDoC) signifies that the responsible party has determined that the equipment has been shown to comply with the applicable technical standards if no unauthorized change is made in the equipment and if the equipment is properly maintained and operated. Compliance with these standards shall not be construed to be a finding by the responsible party with respect to matters not encompassed by the Commission's rules.
- (b) SDoC is effective until a termination date is otherwise established by the Commission.
- (c) No person shall, in any advertising matter, brochure, etc., use or make reference to Supplier's Declaration of Conformity in a deceptive or misleading manner or convey the impression that such Supplier's Declaration of Conformity reflects more than a determination by the manufacturer, importer, integrator, or responsible party, as defined in §2.909, that the device or product has been shown to be capable of complying with the applicable technical standards of the Commission's rules.

Model: SFG-D1100	 MEASUREMENT REPORT 		Approved by: Quality Manager
Test Report S/N: 1M1712270336-04.A3L	Test Dates: 12/27/2017 - 2/2/2018	EUT Type: Outdoor Customer Premise Equipment (CPE)	Page 21 of 22

9.3 Identification, FCC §2.1074

- (a) Devices subject only to Supplier's Declaration of Conformity shall be uniquely identified by the party responsible for marketing or importing the equipment within the United States. However, the identification shall not be of a format which could be confused with the FCC Identifier required on certified equipment. The responsible party shall maintain adequate identification records to facilitate positive identification for each device.
- (b) Devices subject to authorization under Supplier's Declaration of Conformity may be labeled with the following logo on a voluntary basis as a visual indication that the product complies with the applicable FCC requirements. The use of the logo on the device does not alleviate the requirement to provide the compliance information required by §2.1077.



9.4 Compliance information, FCC §2.1077



A compliance information statement shall be supplied with the product at the time of marketing or importation, containing the following information:

- (1) **Identification of the product**, e.g., name and model number;
- (2) **A compliance statement** as applicable, (e.g., for devices subject to part 15, as specified in §15.19(a)(3) of this chapter, that the product complies with the rules; and
- (3) **The identification, by name, address and telephone number or Internet contact information, of the responsible party**, as defined in §2.909. The responsible party for Supplier's Declaration of Conformity must be located within the United States.

If a product is assembled from modular components (e.g., enclosures, power supplies and CPU boards) that, by themselves, are authorized under a Supplier's Declaration of Conformity and/or a grant of certification, and the assembled product is also subject to authorization under Supplier's Declaration of Conformity but, in accordance with the applicable regulations, does not require additional testing, the product shall be supplied, at the time of marketing or importation, with a compliance information statement containing the following information:

- (1) Identification of the assembled product, e.g., name and model number.
- (2) Identification of the modular components used in the assembly. A modular component authorized under Supplier's Declaration of Conformity shall be identified as specified in paragraph (a)(1) of this section. A modular component authorized under a grant of certification shall be identified by name and model number (if applicable) along with the FCC Identifier number.
- (3) A statement that the product complies with part 15 of this chapter.
- (4) The identification, by name, address and telephone number or Internet contact information, of the responsible party who assembled the product from modular components, as defined in §2.909. The responsible party for Supplier's Declaration of Conformity must be located within the United States.
- (5) Copies of the compliance information statements for each modular component used in the system that is authorized under Supplier's Declaration of Conformity.

The compliance information statement shall be included in the user's manual or as a separate sheet. In cases where the manual is provided only in a form other than paper, such as on a computer disk or over the Internet, the information required by this section may be included in the manual in that alternative form, provided the user can reasonably be expected to have the capability to access information in that form. The information may be provided electronically as permitted in §2.935.

Model: SFG-D1100	 MEASUREMENT REPORT 		Approved by: Quality Manager
Test Report S/N: 1M1712270336-04.A3L	Test Dates: 12/27/2017 - 2/2/2018	EUT Type: Outdoor Customer Premise Equipment (CPE)	Page 22 of 22