DP AUDIO VIDEO LLC

TEST REPORT

SCOPE OF WORK
FCC TESTING–ANT801DCR

REPORT NUMBER
210225001SZN-003

ISSUE DATE **[REVISED DATE]**
10 March 2021 [----------]

PAGES
17

DOCUMENT CONTROL NUMBER
FCC ID JBP_B

DP AUDIO VIDEO LLC

Application
For
Certification

FCC ID: 2AVRVANT801DCR

INDOOR ANTENNA

Model: ANT801DCR

Brand Name: Core Innovations

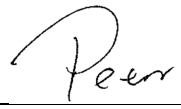
Part 15 Class B Digital Devices

Report No.: 210225001SZN-003

Prepared and Checked by:

Winkey Wang
Senior Project Engineer

Approved by:



Peter Kang
Senior Technical Supervisor
Date: 10 March 2021

Intertek Testing Service Shenzhen Ltd. Longhua Branch
101, 201, Building B, No. 308 Wuhe Avenue, Zhangkengjing Community, GuanHu Subdistrict, LongHua District, Shenzhen, P.R. China.
Tel: (86 755) 8601 6288 Fax: (86 755) 8601 6751

MEASUREMENT / TECHNICAL REPORT

This report concerns (check one:) Original Grant X Class I Change __

Equipment Type: JAB - Part 15 Class B Digital Devices(Other Class B digital devices & peripherals)

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? Yes _____ No ____X____

If yes, defer until: _____
date

Company Name agrees to notify the Commission by: _____
date

of the intended date of announcement of the product so that the grant can be issued on that date.

Transition Rules Request per 15.37? Yes _____ No ____X____

If no, assumed Part 15, Subpart B for unintentional radiator – the new 47 CFR [10-01-19 Edition] provision.

Report prepared by:

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Table of Contents

1.0 SUMMARY OF TEST RESULT

Grantee: DP AUDIO VIDEO LLC
Grantee Address: 920 Malcolm Ave, Los Angeles, California 90024, United States

Model: ANT801DCR
FCC ID: 2AVRVANT801DCR

Test Specification	Reference	Results
Radiated Emission	15.107	Pass
Conducted Emission	15.109	Pass

2.0 General Description

2.1 Product Description

The Equipment Under Test (EUT) is a digital device, named INDOOR ANTENNA. The device is used to connect a TV set, and is powered by 9Vac via AC/DC adapter. For more detail information pls. refer to the user manual.

2.2 Related Submittal(s) Grants

This is an application for certification of other Class B digital devices & peripherals (only amplifier part) for the INDOOR ANTENNA. Other external switching power supply was reported in the other FCC SDoC report.

2.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (2014). Radiated emission measurement was performed in Semi-anechoic chamber and conducted emission measurement was performed in shield room. For radiated emission measurement, preliminary scans were performed in the semi-anechoic chamber only to determine the worst-case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Justification Section**" of this Application.

2.4 Test Facility

The Semi-anechoic chamber and shielding room used to collect the radiated data and conducted data are **Intertek Testing Services Shenzhen Ltd. Longhua Branch** and located at 101, 201, Building B, No. 308 Wuhe Avenue, Zhangkengjing Community, GuanHu Subdistrict, LongHua District, ShenZhen, P.R. China. This test facility and site measurement data have been fully placed on file with the FCC (Registration Number: CN1188).

3.0 System Test Configuration

3.1 Justification

The system was configured for testing in a typical fashion (as a customer would normally use it), and in the confines as outlined in ANSI C63.4 (2014).

The device was powered by AC 120V/60Hz during the test. The test system was pre-scanning tested based on the consideration of EUT operation mode. Only the worst-case data is shown in the report.

For maximizing emissions, the EUT was rotated through 360°, the antenna height was varied from 1 meter to 4 meters above the ground plane, and the antenna polarization was changed. The step by step procedure for maximizing emissions led to the data reported in Section 4.0.

The rear of unit shall be flushed with the rear of the table.

The equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). The EUT was placed on turn table, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes.

The frequency ranges from 30MHz to 1GHz was searched for spurious emissions from the device. Only those emissions reported were detected. All other emissions were at least 20 dB below the applicable limits.

3.2 EUT Exercising Software

N/A

3.3 Special Accessories

N/A

3.4 Equipment Modification

Any modifications installed previous to testing by DP AUDIO VIDEO LLC will be incorporated in each production model sold / leased in the United States.

No modifications were installed by Intertek Testing Services Shenzhen Ltd. Longhua Branch.

3.5 Measurement Uncertainty

When determining the test conclusion, the Measurement Uncertainty of test has been considered.

Measurement Uncertainty	Uncertainty
AC conducted Emission	±3.6dB
Radiated Emission (Up to 1GHz)	±4.8dB
Radiated Emission (1GHz to 6GHz)	±4.8dB
Radiated Emission (6GHz to 18GHz)	±5.1dB

3.6 Support Equipment List and Description

Description	Manufacturer	Model No.
Test TV	SONY	KDL-24EX520
Coaxial Cable	DP AUDIO VIDEO LLC	Unshielded, Length 300cm
AC/DC adapter	DP AUDIO VIDEO LLC	Model: MKS-0900500M Input:120-240V~, 50/60Hz, 0.3A Output: 9Vdc, 500mA

4.0 Emission Results

Data is included worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included.

4.1 Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

$FS = RA + AF + CF - AG$

where FS = Field Strength in dBμV/m
RA = Receiver Amplitude (including preamplifier) in dBμV
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB/m
AG = Amplifier Gain in dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

$FS = RA + AF + CF - AG$

Example

Assume a receiver reading of 62.0dBμV is obtained. The antenna factor of 7.4dB/m and cable factor of 1.6dB is added. The amplifier gain of 29dB is subtracted. The net field strength for comparison to the appropriate emission limit is 42dBμV/m. This value in dBμV/m was converted to its corresponding level in μV/m.

RA = 62.0dBμV
AF = 7.4dB/m
CF = 1.6dB
AG = 29.0dB

$FS = 62 + 7.4 + 1.6 - 29 = 42 dB\mu V/m$

Level in μV/m = Common Antilogarithm [(42dBμV/m)/20] = 125.9μV/m

4.2 Radiated Emission Configuration Photograph

Worst Case Radiated Emission
At
622.605333MHz (Amplify Mode)

For electronic filing, the worst case radiated emission configuration photograph is saved with filename: radiated photos.pdf.

4.3 Radiated Emission Data

The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit.

Judgement: Passed by 7.1dB margin (Amplify Mode)

TEST PERSONNEL:

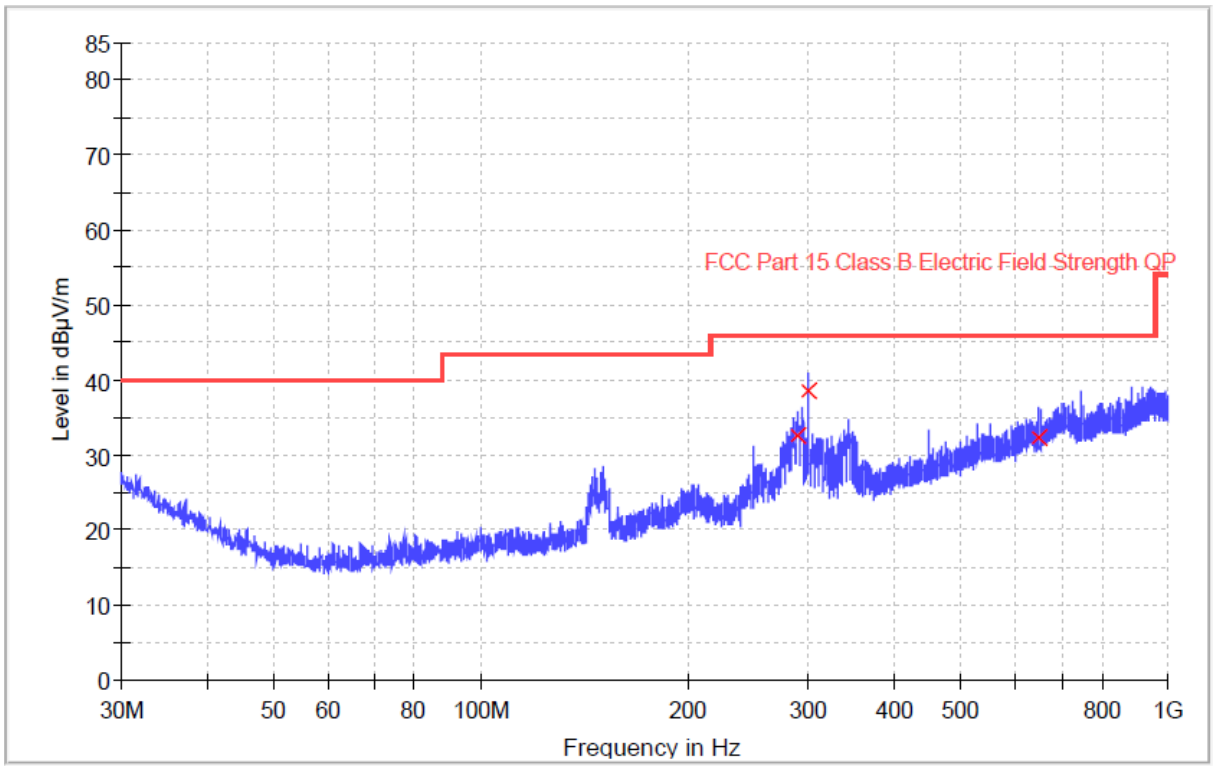
Sign on file

Winkey Wang, Senior Project Engineer
Typed/Printed Name

03 March, 2021
Date

Applicant: DP AUDIO VIDEO LLC
Date of Test: 03 March, 2021 Model: ANT801DCR
Worst Case Operating Mode: Amplify

Horizontal

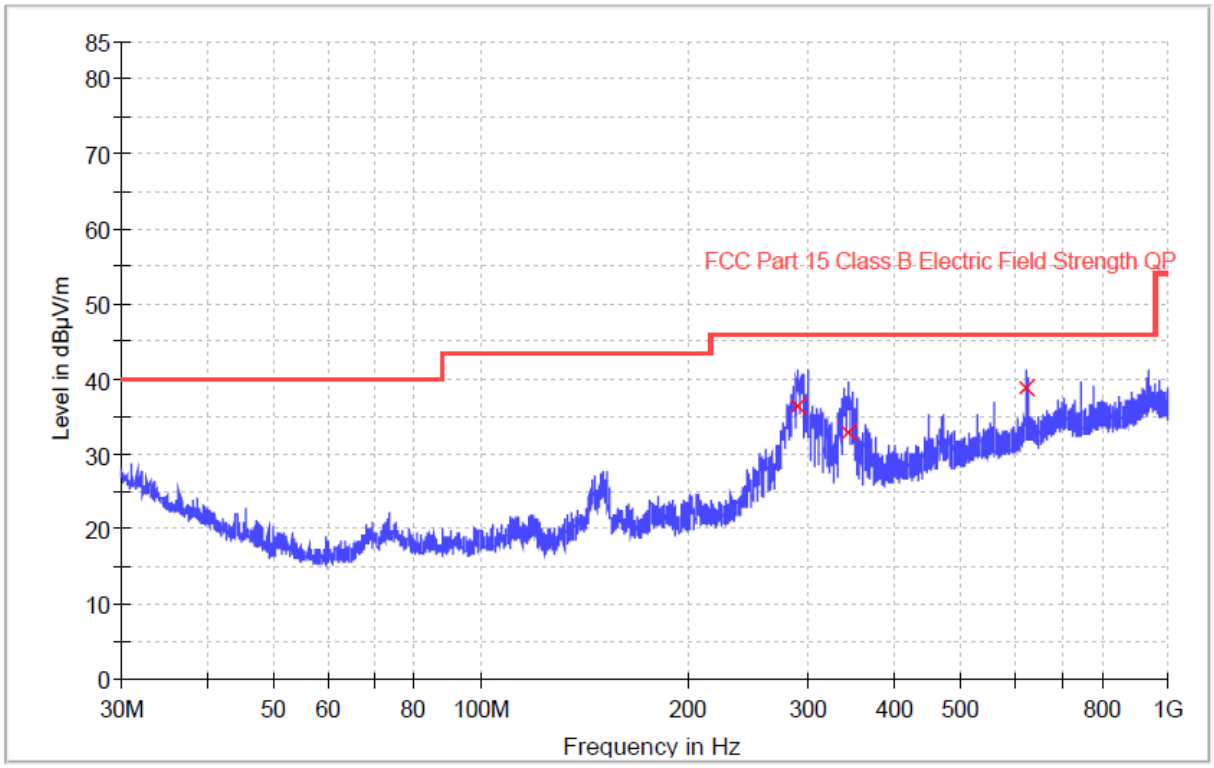


Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
289.216333	32.6	1000.0	120.000	100.0	H	15.1	13.4	46.0
299.983333	38.6	1000.0	120.000	100.0	H	15.4	7.4	46.0
649.991667	32.4	1000.0	120.000	100.0	H	23.5	13.6	46.0

Remark:
1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. QuasiPeak (dBµV/m)= Corr. (dB/m)+ Read Level (dBµV)
3. Margin (dB) = Limit Line(dBµV/m) – Level (dBµV/m)

Applicant: DP AUDIO VIDEO LLC
Date of Test: 03 March, 2021 Model: ANT801DCR
Worst Case Operating Mode: Amplify

Vertical



Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
289.507333	36.4	1000.0	120.000	100.0	V	15.1	9.6	46.0
343.374667	32.9	1000.0	120.000	100.0	V	17.1	13.1	46.0
622.605333	38.9	1000.0	120.000	100.0	V	24.1	7.1	46.0

Remark:
1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. QuasiPeak (dBµV/m)= Corr. (dB/m)+ Read Level (dBµV)
3. Margin (dB) = Limit Line(dBµV/m) – Level (dBµV/m)

4.4 Conducted Emission at Mains Terminal

4.4.1 Conducted Emission Configuration Photograph

Worst Case Conducted Configuration
at
3.182000 MHz (Amplify Mode)

For electronic filing, the worst case conducted emission configuration photograph is saved with filename: conducted photos.pdf.

4.5 Conducted Emission Data

Judgement: Passed by 4.1 dB margin(Amplify Mode)

TEST PERSONNEL:

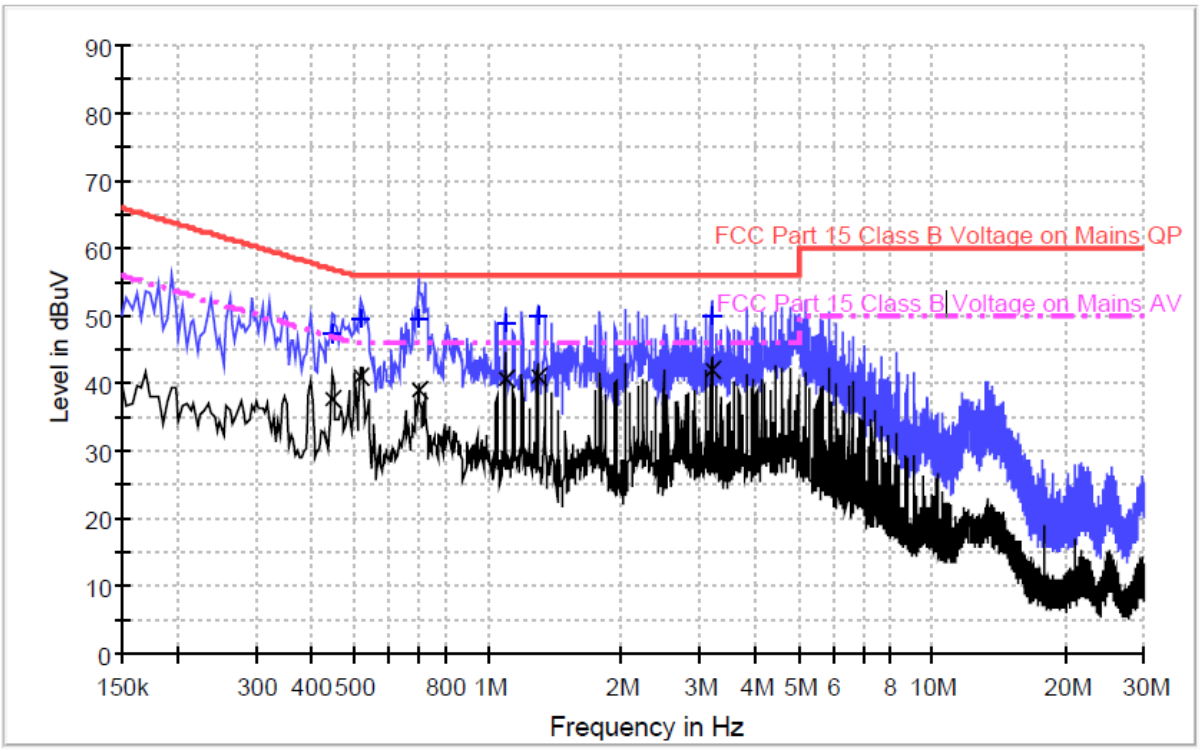
Sign on file

Winkey Wang, Senior Project Engineer
Typed/Printed Name

25 February 2021
Date

Applicant: DP AUDIO VIDEO LLC
Date of Test: 25 February 2021
Model: ANT801DCR
Operating Mode: Amplify
Phase: Live

Conducted Emission Test - FCC



Result Table QP

Frequency (MHz)	QuasiPeak (dBµV)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.446000	47.4	L	9.6	9.5	56.9
0.518000	49.8	L	9.6	6.2	56.0
0.698000	49.7	L	9.6	6.3	56.0
1.095000	49.1	L	9.7	6.9	56.0
1.294000	49.8	L	9.7	6.2	56.0
3.182000	50.1	L	9.7	5.9	56.0

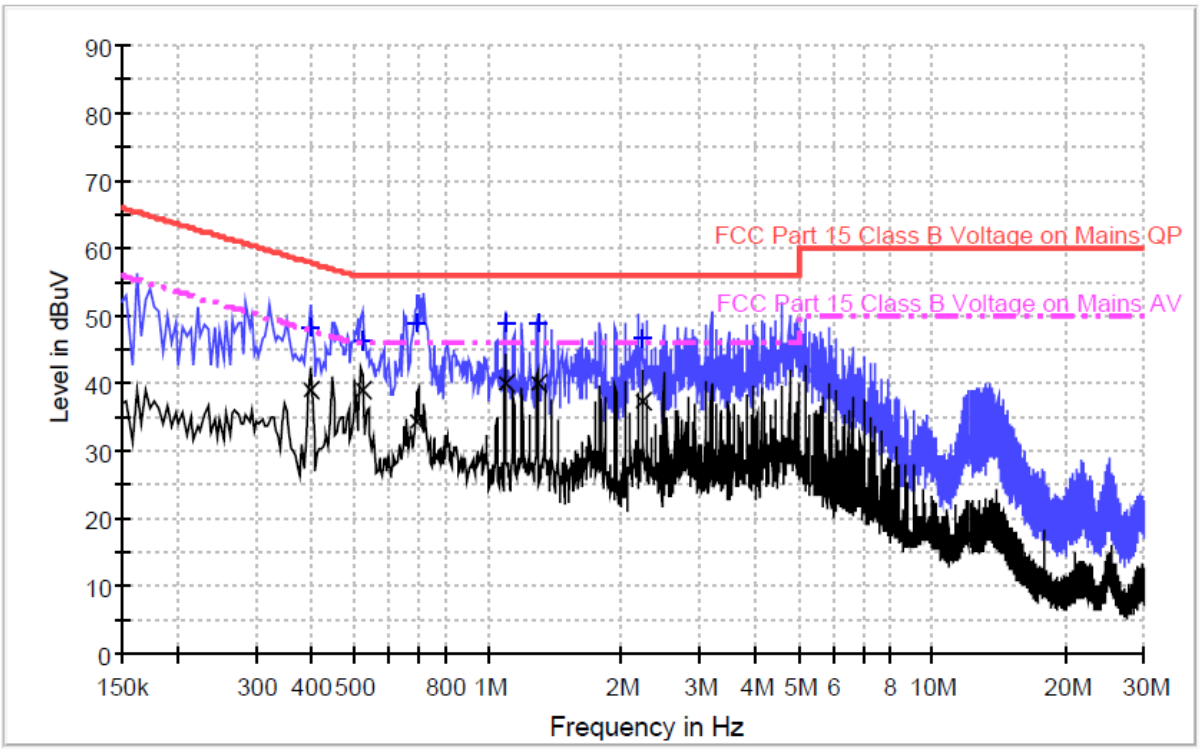
Result Table AV

Frequency (MHz)	Average (dBµV)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.446000	37.7	L	9.6	9.2	46.9
0.518000	41.0	L	9.6	5.0	46.0
0.698000	39.2	L	9.6	6.8	46.0
1.095000	40.7	L	9.7	5.3	46.0
1.294000	41.0	L	9.7	5.0	46.0
3.182000	41.9	L	9.7	4.1	46.0

Test Engineer: Winkey Wang

Applicant: DP AUDIO VIDEO LLC
Date of Test: 25 February 2021
Model: ANT801DCR
Operating Mode: Amplify
Phase: Neutral

Conducted Emission Test - FCC



Result Table QP

Frequency (MHz)	QuasiPeak (dBµV)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.397500	48.2	N	9.5	9.7	57.9
0.522000	46.2	N	9.5	9.8	56.0
0.694000	48.9	N	9.5	7.1	56.0
1.094000	49.0	N	9.5	7.0	56.0
1.294000	48.9	N	9.5	7.1	56.0
2.238000	46.7	N	9.5	9.3	56.0

Result Table AV

Frequency (MHz)	Average (dBµV)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.397500	38.9	N	9.5	9.0	47.9
0.522000	38.9	N	9.5	7.1	46.0
0.694000	34.4	N	9.5	11.6	46.0
1.094000	39.9	N	9.5	6.1	46.0
1.294000	39.9	N	9.5	6.1	46.0
2.238000	37.2	N	9.5	8.8	46.0

Test Engineer: Winkey Wang

5.0 Equipment Photographs

For electronic filing, photographs of the tested EUT are saved with filename: external photos.pdf and internal photos.pdf.

6.0 Product Labelling

For electronics filing, the FCC ID label artwork and the label location are saved with filename: label.pdf.

7.0 Technical Specifications

For electronic filing, the block diagram of the tested EUT is saved with filename: block.pdf.

8.0 Instruction Manual

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf.

This manual will be provided to the end-user with each unit sold / leased in the United States.

9.0 Miscellaneous Information

This miscellaneous information includes emission measuring procedure.

9.1 Emissions Test Procedures

The following is a description of the test procedure used by Intertek Testing Services in the measurements of digital devices operating under Part 15, Subpart B rules.

The test set-up and procedures described below are designed to meet the requirements of ANSI C63.4 – 2014.

The digital devices equipment under test (EUT) is placed on a styrene turntable which is four feet in diameter and approximately 0.8 meter in height above the ground plane. During the radiated emissions test, the turntable is rotated and any cables leaving the EUT are manipulated to find the configuration resulting in maximum emissions. The antenna height and polarization are varied during the testing to search for maximum signal levels. The height of the antenna is varied from one to four meters.

Detector function for radiated emissions are in QP mode from the frequency band 30MHz to 1GHz with RBW setting 120kHz and in PK & AV mode from frequency band 1GHz to 12.5GHz with RBW setting 1MHz. Detector function for conducted emissions are in QP & AV mode and IFBW setting is 9kHz from the frequency band 150kHz to 30MHz.

For radiated emission, the frequency range scanned is 30MHz to 12.5GHz. For line-conducted emissions, the range scanned is 150kHz to 30MHz with RBW setting 9KHz.

The EUT is warmed up for 15 minutes prior to the test.

Conducted measurements are made as described in ANSI C63.4 – 2014.

10.0 Test Equipment List

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
SZ061-12	Biconilog Antenna	ETS	3142E	00166158	14-Sep-2018	14-Sep-2021
SZ061-08	Double-Ridged Waveguide Horn Antenna	ETS	3115	00092346	7-Sep-2019	7-Sep-2021
SZ056-03	Spectrum Analyzer	R&S	FSP30	101148	27-May-2020	27-May-2021
SZ185-01	EMI Receiver	R & S	ESCI	100547	22-Dec-2020	22-Dec-2021
SZ181-04	Preamplifier	Agilent	8449B	3008A02474	27-May-2020	27-May-2021
SZ188-01	Anechoic Chamber	ETS	RFD-F/A-100	4102	15-Dec-2018	15-Dec-2021
SZ062-02	RF Cable	RADIALL	RG 213U	--	12-Jun-2020	12-Jun-2021
SZ062-05	RF Cable	RADIALL	0.04-26.5GHz	--	01-Dec-2020	01-Dec-2021
SZ062-12	RF Cable	RADIALL	0.04-26.5GHz	--	01-Dec-2020	01-Dec-2021
SZ185-02	EMI Test Receiver	R&S	ESCI	100692	27-Oct-2020	27-Oct-2021
SZ187-01	Two-Line V-Network	R&S	ENV216	100072	27-Oct-2020	27-Oct-2021
SZ187-02	Two-Line V-Network	R&S	ENV216	100073	27-May-2020	27-May-2021
SZ188-03	Shielding Room	ETS	RFD-100	4100	07-Jan-2020	07-Jan-2023
SZ062-16	RF Cable	HUBER+SUHNER	CBL2-BN-1m	--	13-Nov-2020	13-Nov-2021

**********End of Report**********