



Report No.: TW2305193-02E  
Applicant: Delta Electronics Incorporated  
Product: NovoDS Digital Signage Solution  
Model No.: DS310  
Trademark: Vivitek  
FCC ID: H79-023DS3  
Test Standards: FCC Part 15.249

Test result: It is herewith confirmed and found to comply with the requirements set up by ANSI C63.10 & FCC Part 15 Subpart C, Paragraph 15.249 regulations for the evaluation of electromagnetic compatibility

Approved By

A handwritten signature in black ink that reads 'Terry Tang'.

Terry Tang

Manager

Dated: June 05, 2023

**Results appearing herein relate only to the sample tested**

**The technical reports is issued errors and omissions exempt and is subject to withdrawal at**

**SHENZHEN TIMEWAY TESTING LABORATORIES**

**Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West,  
Tong Le Village, Nanshan District, Shenzhen, China**

Tel (755) 83448688, Fax (755) 83442996, E-Mail: info@timeway-lab.com

TEST REPORT



### **Special Statement:**

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meet with ISO/IEC-17025 requirements, which is approved by CNAS. This approval result is accepted by MRA of APLAC.

Our test facility is recognized, certified, or accredited by the following organizations:

#### **CNAS-LAB Code: L2292**

The EMC Laboratory has been assessed and in compliance with CNAS-CL01 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:2017 General Requirements) for the Competence of testing Laboratories.

#### **FCC-Registration No.: 744189**

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 744189.

#### **Industry Canada (IC) —Registration No.:5205A**

The EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 5205A.

#### **A2LA (Certification Number:5013.01)**

The EMC Laboratory has been accredited by the American Association for Laboratory Accreditation (A2LA). Certification Number:5013.01

#### **CAB identifier: CN0033**

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## 1.0 General Details

### 1.1 Test Lab Details

Name: SHENZHEN TIMEWAY TESTING LABORATORIES.  
Address: Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China  
Telephone: (755) 83448688  
Fax: (755) 83442996  
Site on File with the Federal Communications Commission – United States  
Registration Number: 744189  
For 3m Anechoic Chamber

### 1.2 Applicant Details

Applicant: Delta Electronics Incorporated  
Address: 3 Tungyung rd., Chungli Industrial Zone, Taoyuan County 32063 Taiwan  
Telephone: --  
Fax: --

### 1.3 Description of EUT

Product: NovoDS Digital Signage Solution  
Manufacturer: Delta Electronics Incorporated  
Address: 3 Tungyung rd., Chungli Industrial Zone, Taoyuan County 32063 Taiwan  
Trademark: Vivitek  
Additional Trademark: N/A  
Model Number: DS310  
Additional Model Name: N/A  
Hardware Version: RKS220915  
Software Version: build number: 5.0.0.10  
Serial No.: N/A  
Rating: DC5V, 3.0A  
Power Supply: Model: CNXZX3015-050030SA  
Input: AC100-240V~, 50/60Hz, 0.4A; Output: DC5.0V, 3.0A, 15W  
Modulation Type: GFSK,  $\pi/4$ DQPSK, 8DPSK (Bluetooth BR/EDR)  
Operation Frequency: 2402-2480MHz  
Channel Separate: 1MHz  
Channel Number: 79  
Antenna Designation: Dipole antenna used with reverse polarity antenna connectors. The gain is 2.87dBi (Get from the antenna specification)

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1.4 Submitted Sample: 2 Samples

1.5 Test Duration

2023-05-15 to 2023-06-05

1.6 Test Uncertainty

Conducted Emissions Uncertainty =3.6dB

Radiated Emissions below 1GHz Uncertainty =4.7dB

Radiated Emissions above 1GHz Uncertainty =6.0dB

Conducted Power Uncertainty =6.0dB

Occupied Channel Bandwidth Uncertainty =5%

Conducted Emissions Uncertainty =3.6dB

Note: The measurement uncertainty is for coverage factor of  $k=2$  and a level of confidence of 95%.

1.7 Test Engineer

The sample tested by

*Andy-xing*

Print Name: Terry Tang

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2.0 Test Equipment					
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	R&S	ESPI 3	100379	2022-07-15	2023-07-14
LISN	R&S	EZH3-Z5	100294	2022-07-18	2023-07-17
LISN	R&S	EZH3-Z5	100253	2022-07-18	2023-07-17
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2022-07-18	2023-07-17
Loop Antenna	EMCO	6507	00078608	2022-07-18	2025-07-17
Spectrum	R&S	FSIQ26	100292	2022-07-15	2023-07-14
Spectrum	Keysight	N9020A	MY53300466	2023-03-05	2024-03-04
Horn Antenna	A-INFO	LB-180400-KF	J211060660	2022-07-18	2025-07-17
Horn Antenna	R&S	BBHA 9120D	9120D-631	2022-07-18	2024-07-17
Power meter	Anritsu	ML2487A	6K00003613	2022-07-18	2023-07-17
Power sensor	Anritsu	MA2491A	32263	2022-07-18	2023-07-17
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2022-07-18	2025-07-17
9*6*6 Anechoic	--	--	N/A	2022-07-26	2025-07-25
EMI Test Receiver	RS	ESVB	826156/011	2022-07-15	2023-07-14
EMI Test Receiver	RS	ESCS 30	834115/006	2022-07-15	2023-07-14
Spectrum	HP/Agilent	E4407B	MY50441392	2022-07-15	2023-07-14
Spectrum	RS	FSP	1164.4391.38	2022-07-15	2023-07-14
RF Cable	Zhengdi	ZT26-NJ-NJ-8M/FA	--	2022-07-15	2023-07-14
RF Cable	Zhengdi	7m	--	2022-07-15	2023-07-14
Pre-Amplifier	Schwarebeck	BBV9743	#218	2022-07-15	2023-07-14
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2022-07-15	2023-07-14
LISN	SCHAFFNER	NNB42	00012	2022-08-18	2023-07-17
ESPI Test Receiver	R&S	ESPI 3	100379	2022-07-15	2023-07-14
LISN	R&S	EZH3-Z5	100294	2022-07-18	2023-07-17

## 2.2 Automation Test Software

### For Conducted Emission Test

Name	Version
EZ-EMC	Ver.EMC-CON 3A1.1

### For Radiated Emissions

Name	Version
EMI Test Software BL410-EV18.91	V18.905
EMI Test Software BL410-EV18.806 High Frequency	V18.06

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### 3.0 Technical Details

#### 3.1 Summary of test results

<b>The EUT has been tested according to the following specifications:</b>			
<b>Standard</b>	<b>Test Type</b>	<b>Result</b>	<b>Notes</b>
<b>FCC Part 15, Paragraph 15.203</b>	<b>Antenna Requirement</b>	<b>Pass</b>	<b>Complies</b>
<b>FCC Part 15, Paragraph 15.207</b>	<b>Conducted Emission Test</b>	<b>Pass</b>	<b>Pass</b>
<b>FCC Part 15 Subpart C Paragraph 15.249(a) &amp; 15.249(b) Limit</b>	<b>Field Strength of Fundamental</b>	<b>Pass</b>	<b>Complies</b>
<b>FCC Part 15, Paragraph 15.209</b>	<b>Radiated Emission Test</b>	<b>Pass</b>	<b>Complies</b>
<b>FCC Part 15 Subpart C Paragraph 15.249(d) Limit</b>	<b>Band Edge Test</b>	<b>Pass</b>	<b>Complies</b>

#### 3.2 Test Standards

**FCC Part 15 Subpart C, Paragraph 15.249 , ANSI C63.4 :2014 and ANSI C63.10 :2013**

#### 4.0 EUT Modification

**No modification by SHENZHEN TIMEWAY TESTING LABORATORIES**

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**5. Power Line Conducted Emission Test**

5.1 Schematics of the test



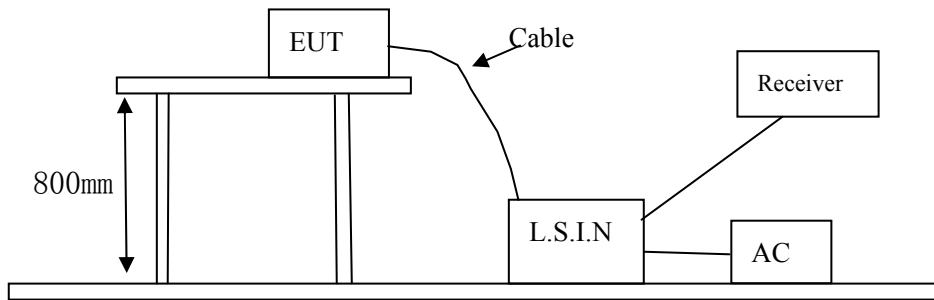
EUT: Equipment Under Test

5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.10-2013. The Frequency spectrum from 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.10 –2013.

Test Voltage: 120V~, 60Hz

Block diagram of Test setup



5.3 Configuration of the EUT

The EUT was configured according to ANSI C63.10-2013. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

79 channels are provided to the EUT

A. EUT

Device	Manufacturer	Model	FCC ID
NovoDS Digital Signage Solution	Delta Electronics Incorporated	DS310	H79-023DS3

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B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
Adapter	Utech	CNXZX3015-0500305A	DOC

C. Peripherals

Device	Manufacturer	Model	Rating
LED Display	DELL	U2720QM	--

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.10-2013

A Setup the EUT and simulators as shown on follow

B Enable AF signal and confirm EUT active to normal condition

5.5 Power line conducted Emission Limit according to Paragraph 15.207

Frequency (MHz)	Limits (dB $\mu$ V)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66.0~56.0*	56.0~46.0*
0.50 ~ 5.00	56.0	46.0
5.00 ~ 30.00	60.0	50.0

- Notes:
1. \*Decreasing linearly with logarithm of frequency.
  2. The tighter limit shall apply at the transition frequencies

5.6 Test Results:

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

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**A: Conducted Emission on Live Terminal (150kHz to 30MHz)**

**EUT Operating Environment**

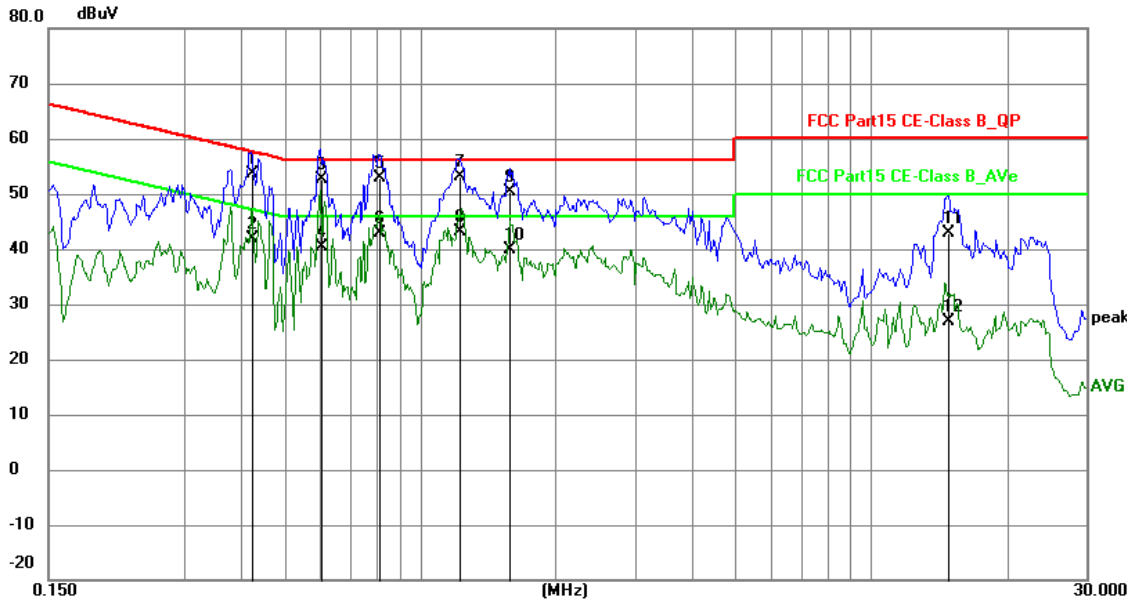
Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 kPa

**EUT set Condition: Keep Bluetooth Transmitting**

**Results: Pass**

**Test Power: AC120V/60Hz**

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.4230	43.83	9.76	53.59	57.39	-3.80	QP	P
2	0.4230	32.14	9.76	41.90	47.39	-5.49	AVG	P
3	0.6023	42.78	9.78	52.56	56.00	-3.44	QP	P
4	0.6023	30.59	9.78	40.37	46.00	-5.63	AVG	P
5	0.8091	43.07	9.78	52.85	56.00	-3.15	QP	P
6	0.8091	33.01	9.78	42.79	46.00	-3.21	AVG	P
7	1.2186	43.42	9.79	53.21	56.00	-2.79	QP	P
8	1.2186	33.42	9.79	43.21	46.00	-2.79	AVG	P
9	1.5774	40.49	9.80	50.29	56.00	-5.71	QP	P
10	1.5774	29.96	9.80	39.76	46.00	-6.24	AVG	P
11	14.8209	32.42	10.37	42.79	60.00	-17.21	QP	P
12	14.8209	16.45	10.37	26.82	50.00	-23.18	AVG	P

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**B: Conducted Emission on Neutral Terminal (150kHz to 30MHz)**

**EUT Operating Environment**

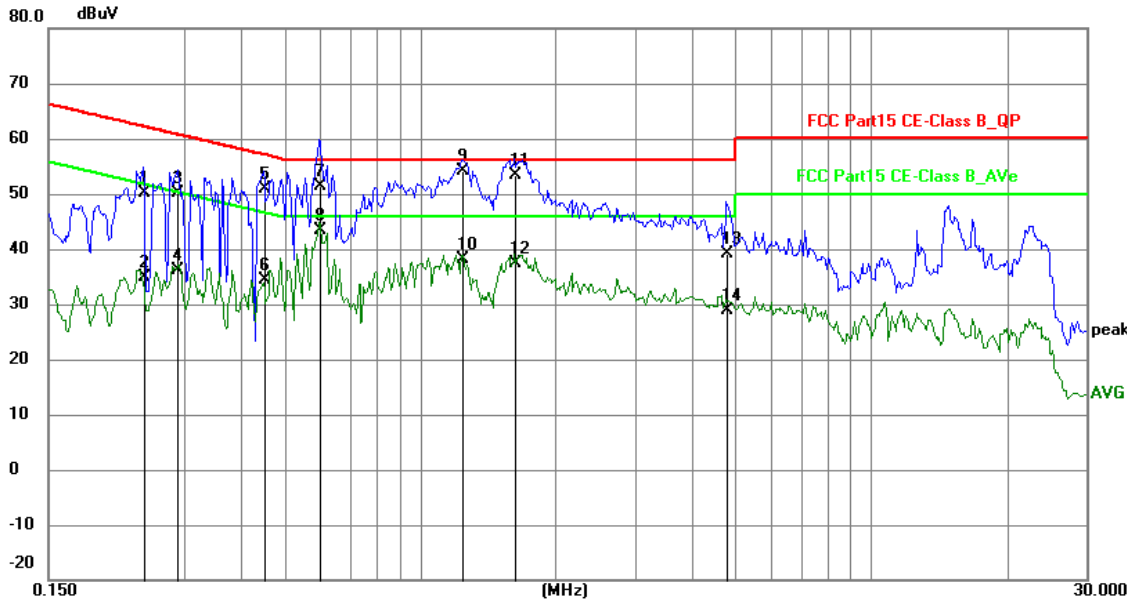
Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 kPa

**EUT set Condition: Keep Bluetooth Transmitting**

**Results: Pass**

**Test Power: AC120V/60Hz**

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.2436	40.31	9.75	50.06	61.97	-11.91	QP	P
2	0.2436	25.18	9.75	34.93	51.97	-17.04	AVG	P
3	0.2904	40.38	9.76	50.14	60.51	-10.37	QP	P
4	0.2904	26.25	9.76	36.01	50.51	-14.50	AVG	P
5	0.4503	41.12	9.77	50.89	56.87	-5.98	QP	P
6	0.4503	24.56	9.77	34.33	46.87	-12.54	AVG	P
7	0.5985	41.51	9.77	51.28	56.00	-4.72	QP	P
8	0.5985	33.61	9.77	43.38	46.00	-2.62	AVG	P
9	1.2420	44.40	9.79	54.19	56.00	-1.81	QP	P
10	1.2420	28.29	9.79	38.08	46.00	-7.92	AVG	P
11	1.6203	43.57	9.80	53.37	56.00	-2.63	QP	P
12	1.6203	27.59	9.80	37.39	46.00	-8.61	AVG	P
13	4.7784	29.09	9.92	39.01	56.00	-16.99	QP	P
14	4.7784	18.99	9.92	28.91	46.00	-17.09	AVG	P

Note: Both 240V and 120V voltages are tested, the data of the worst-case is shown in the report.

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**6 Radiated Emission Test**

6.1 Test Method and test Procedure:

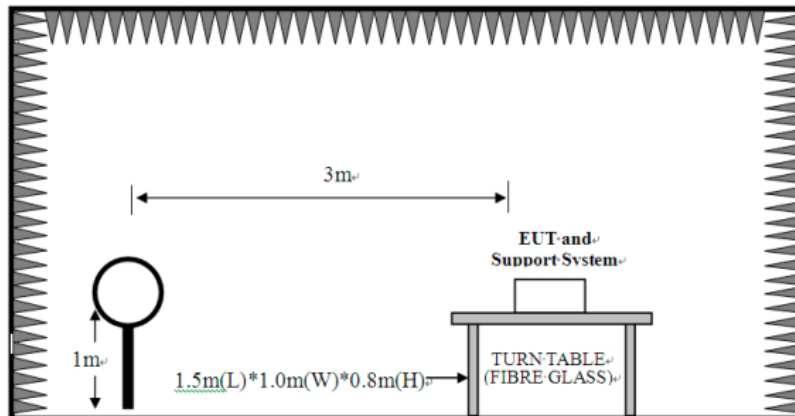
- (1) The EUT was tested according to ANSI C63.10-2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No. 744189
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.10-2013.
- (3) The frequency spectrum is set as follows:

Frequency	Detector	RBW	VBW	Value
9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) The antenna polarization: Vertical polarization and Horizontal polarization.

**Block diagram of Test setup**

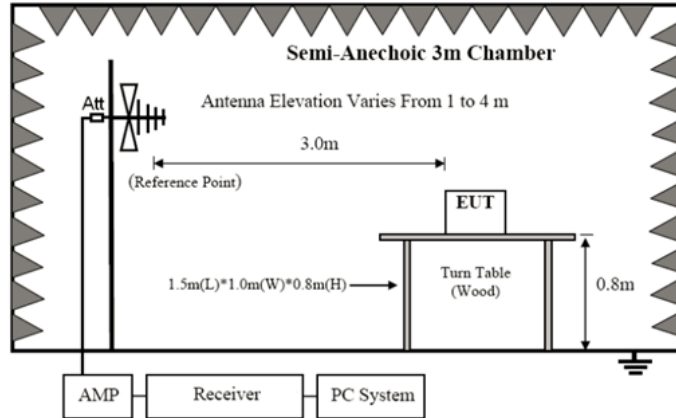
For radiated emissions from 9kHz to 30MHz



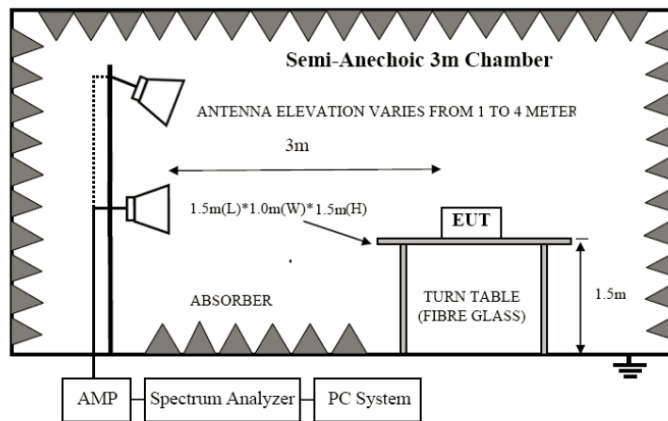
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For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



## 6.2 Configuration of The EUT

Same as section 5.3 of this report

## 6.3 EUT Operating Condition

Same as section 5.4 of this report.

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6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

**A FCC Part 15 Subpart C Paragraph 15.249(a) Limit**

Fundamental Frequency (MHz)	Field Strength of Fundamental (3m)		Field Strength of Harmonics (3m)		
	mV/m	dBuV/m	uV/m	dBuV/m	
2400-2483.5	50	94 (Average) 114 (Peak)	500	54 (Average)	74 (Peak)

- Note:
1. RF Field Strength (dBuV) = 20 log RF Voltage (uV)
  2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
  3. The emission limit in this paragraph is based on measurement instrumentation employing an average detector.

**B. Frequencies in restricted band are complied to limit on Paragraph 15.209.**

Frequency Range (MHz)	Distance (m)	Field strength (dB μ V/m)
0.009-0.490	3	20log(2400/F(kHz)) +40log (300/3)
0.490-1.705	3	20log(24000/F(kHz)) +40log (30/3)
1.705-30	3	69.5
30-88	3	40.0
88-216	3	43.
216-960	3	46.0
Above 960	3	54.0

- Note:
1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
  2. In the Above Table, the tighter limit applies at the band edges.
  3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT
  4. All scanning using PK detector. And the final emission level was get using QP detector for frequency range from 30-1000MHz.As to 1G-25G, the final emission level got using PK. For fundamental measurement, PK detector used.
  5. For radiated emissions from 9kHz to 30MHz, the emission level is much less than the limit for more than 20dB. No necessary to take down the record.
  6. The three modulation modes of GFSK, Pi/4D-QPSK and 8DPSK were tested. And only the worst case was recorded in the test report. GFSK was the worst case.

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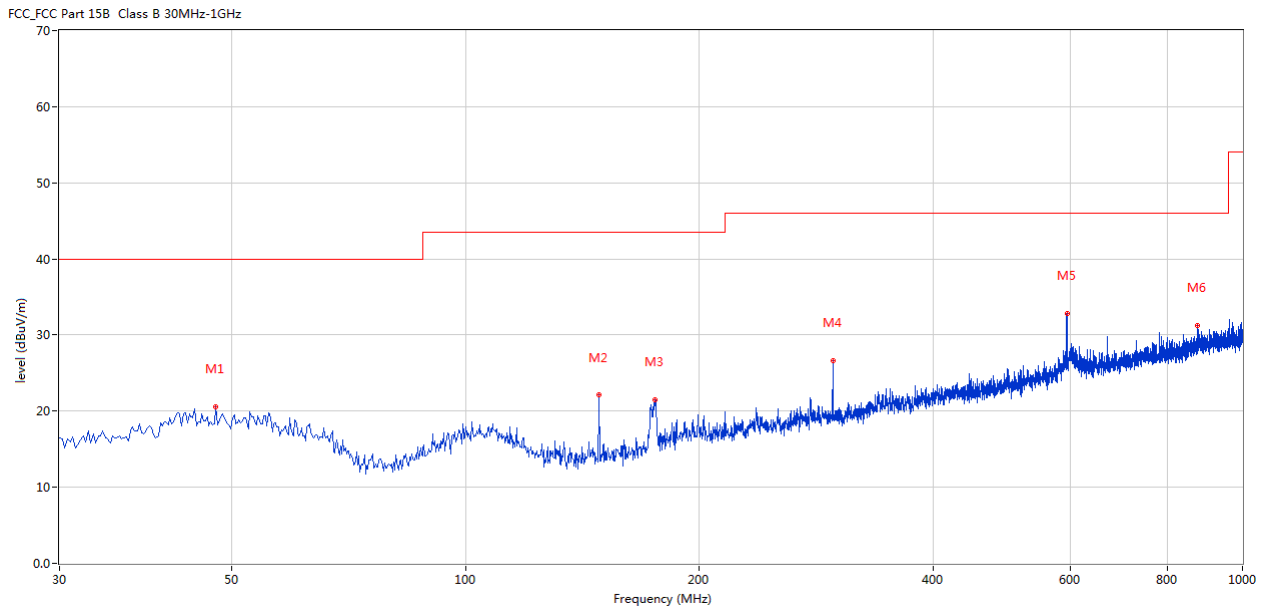


**General Radiated Emission Data**  
**Radiated Emission In Horizontal (30MHz----1000MHz)**

EUT set Condition: Keep Tx transmitting

**Results: Pass**

Please refer to following diagram for individual



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	47.698	20.53	-11.34	40.0	-19.47	Peak	41.00	100	Horizontal	Pass
2	148.553	22.09	-17.15	43.5	-21.41	Peak	119.00	100	Horizontal	Pass
3	175.464	21.52	-15.57	43.5	-21.98	Peak	84.00	100	Horizontal	Pass
4	296.926	26.67	-11.07	46.0	-19.33	Peak	148.00	100	Horizontal	Pass
5	594.156	32.85	-5.26	46.0	-13.15	Peak	167.00	100	Horizontal	Pass
6	874.659	31.26	-2.17	46.0	-14.74	Peak	209.00	100	Horizontal	Pass

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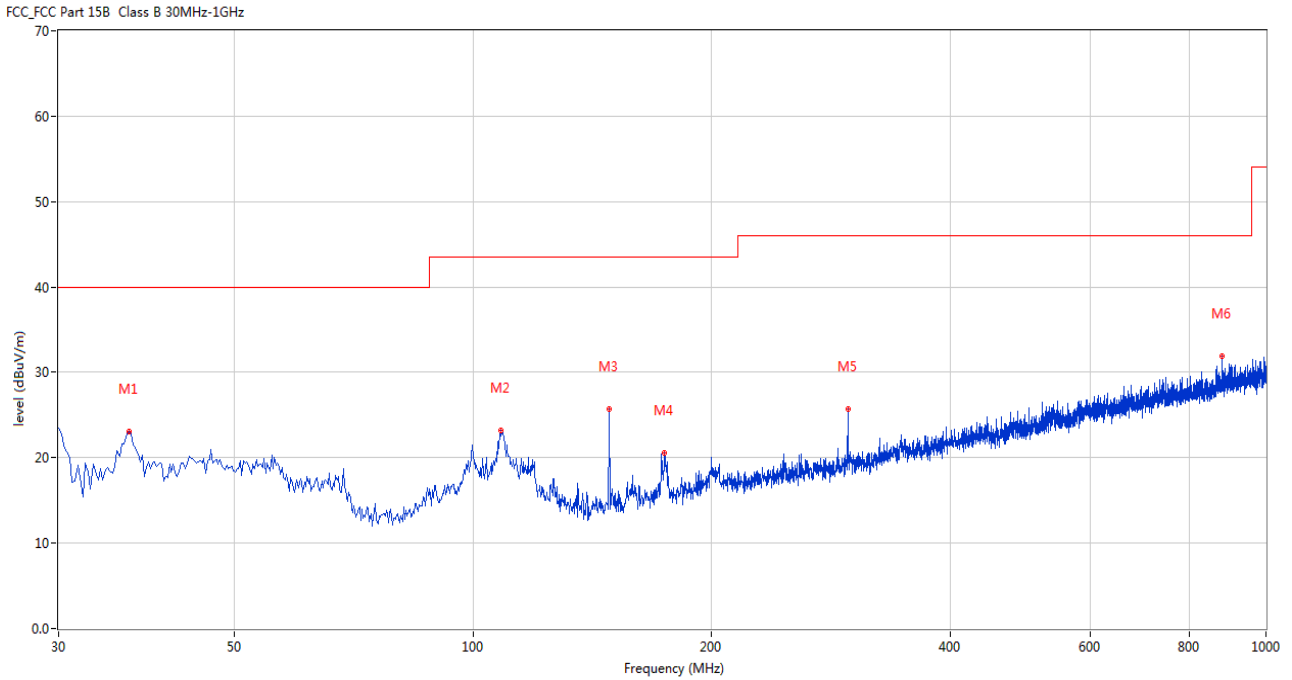


**Radiated Emission In Vertical (30MHz----1000MHz)**

EUT set Condition: Keep Tx transmitting

**Results: Pass**

Please refer to following diagram for individual



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	36.788	23.12	-13.31	40.0	-16.88	Peak	114.00	100	Vertical	Pass
2	108.308	23.23	-13.43	43.5	-20.27	Peak	93.00	100	Vertical	Pass
3	148.553	25.67	-17.15	43.5	-17.83	Peak	163.00	100	Vertical	Pass
4	174.494	20.55	-15.77	43.5	-22.95	Peak	343.00	100	Vertical	Pass
5	296.926	25.71	-11.07	46.0	-20.29	Peak	182.00	100	Vertical	Pass
6	879.508	31.85	-1.96	46.0	-14.15	Peak	351.00	100	Vertical	Pass

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**Operation Mode: Transmitting under Low Channel (2402MHz)**

Frequency (MHz)	Level@3m (dB $\mu$ V/m)	Antenna Polarity	Limit@3m (dB $\mu$ V/m)
2402	85.65	H	114(Peak)/ 94(AV)
2402	90.27	V	114(Peak)/ 94(AV)
4804	--	H	74(Peak)/ 54(AV)
4804	--	V	74(Peak)/ 54(AV)
7206	--	H/V	74(Peak)/ 54(AV)
9608	--	H/V	74(Peak)/ 54(AV)
12010	--	H/V	74(Peak)/ 54(AV)
14412	--	H/V	74(Peak)/ 54(AV)
16814	--	H/V	74(Peak)/ 54(AV)
19216	--	H/V	74(Peak)/ 54(AV)
21618	--	H/V	74(Peak)/ 54(AV)
24020	--	H/V	74(Peak)/ 54(AV)

- Note: 1. Level = Reading + AF + Cable - Preamp  
 2. Remark “---” means that the emissions level is too low to be measured

**Operation Mode: Transmitting g under Middle Channel (2441MHz)**

Frequency (MHz)	Level@3m (dB $\mu$ V/m)	Antenna Polarity	Limit@3m (dB $\mu$ V/m)
2441	85.79	H	114(Peak)/ 94(AV)
2441	90.68	V	114(Peak)/ 94(AV)
4882	--	H	74(Peak)/ 54(AV)
4882	--	V	74(Peak)/ 54(AV)
7323	--	H/V	74(Peak)/ 54(AV)
9764	--	H/V	74(Peak)/ 54(AV)
12205	--	H/V	74(Peak)/ 54(AV)
14646	--	H/V	74(Peak)/ 54(AV)
17087	--	H/V	74(Peak)/ 54(AV)
19528	--	H/V	74(Peak)/ 54(AV)
21969	--	H/V	74(Peak)/ 54(AV)
24410	--	H/V	74(Peak)/ 54(AV)

- Note: 1. Level = Reading + AF + Cable - Preamp  
 2. Remark “---” means that the emissions level is too low to be measured

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**Operation Mode: Transmitting under High Channel (2480MHz)**

Frequency (MHz)	Level@3m (dB $\mu$ V/m)	Antenna Polarity	Limit@3m (dB $\mu$ V/m)
2480	86.39	H	114(Peak)/ 94(AV)
2480	92.07	V	114(Peak)/ 94(AV)
4960	--	H	74(Peak)/ 54(AV)
4960	--	V	74(Peak)/ 54(AV)
7440	--	H/V	74(Peak)/ 54(AV)
9920	--	H/V	74(Peak)/ 54(AV)
12400	--	H/V	74(Peak)/ 54(AV)
14880	--	H/V	74(Peak)/ 54(AV)
17360	--	H/V	74(Peak)/ 54(AV)
19840	--	H/V	74(Peak)/ 54(AV)
22320	--	H/V	74(Peak)/ 54(AV)
24800	--	H/V	74(Peak)/ 54(AV)

- Note: 1. Level = Reading + AF + Cable - Preamp  
 2. Remark “---” means that the emissions level is too low to be measured

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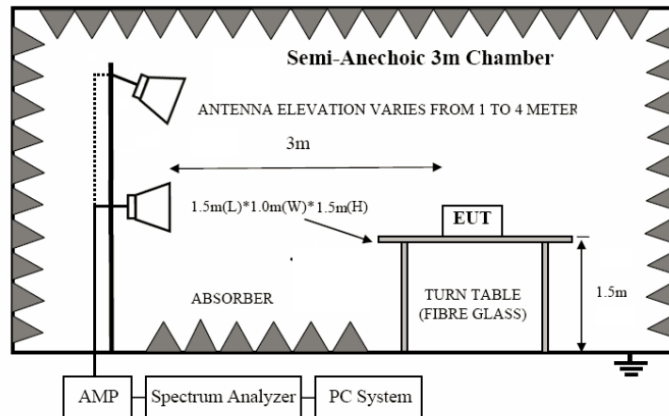


## 7. Band Edge

### 7.1 Test Method and test Procedure:

- (1) The EUT was tested according to ANSI C63.10–2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No. 744189
- (2) Set Spectrum as RBW=1MHz, VBW=3MHz and Peak detector used for PK value. RBW=1MHz, VBW=10Hz and Peak detector used for AV value.
- (3) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (4) The antenna polarization: Vertical polarization and Horizontal polarization.

### 7.2 Radiated Test Setup



For the actual test configuration, please refer to the related items – Photos of Testing

### 7.3 Configuration of the EUT

Same as section 5.3 of this report

### 7.4 EUT Operating Condition

Same as section 5.4 of this report.

### 7.5 Band Edge Limit

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

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**7.6 Test Result**

Restricted band Measurement

EUT	NovoDS Digital Signage Solution		Model	DS310
Mode	Keeping Transmitting		Test Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
Low Channel, Vertical				
2390	PK (dB $\mu$ V/m)	41.39	Limit	74(dB $\mu$ V/m)
	AV (dB $\mu$ V/m)	--		54(dB $\mu$ V/m)
2400	PK (dB $\mu$ V/m)	63.87	Limit	74(dB $\mu$ V/m)
	AV (dB $\mu$ V/m)	47.53		54(dB $\mu$ V/m)
Low Channel, Vertical				
2390	PK (dB $\mu$ V/m)	41.62	Limit	74(dB $\mu$ V/m)
	AV (dB $\mu$ V/m)	--		54(dB $\mu$ V/m)
2400	PK (dB $\mu$ V/m)	60.21	Limit	74(dB $\mu$ V/m)
	AV (dB $\mu$ V/m)	44.69		54(dB $\mu$ V/m)

Restricted band Measurement

EUT	NovoDS Digital Signage Solution		Model	DS310
Mode	Keeping Transmitting		Test Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
High Channel, Horizontal				
2483.5	PK (dB $\mu$ V/m)	50.51	Limit	74(dB $\mu$ V/m)
	AV (dB $\mu$ V/m)	--		54(dB $\mu$ V/m)
High Channel, Vertical				
2483.5	PK (dB $\mu$ V/m)	55.38	Limit	74(dB $\mu$ V/m)
	AV (dB $\mu$ V/m)	41.25		54(dB $\mu$ V/m)

Note: 1. The PK emission level less than the AV limit. No necessary to record the AV emission level.  
 2. Three modulation Types were tested and only the worst case was recorded in the test report and GFSK modulation was the worst case.

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## 8.0 Antenna Requirement

### Applicable Standard

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

This product has a Dipole antenna used with reverse polarity antenna connectors. The gain is 2.87dBi (Get from the antenna specification). It fulfills the requirement of this section.

Test Result: Pass

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### 9.0 20dB Bandwidth Measurement

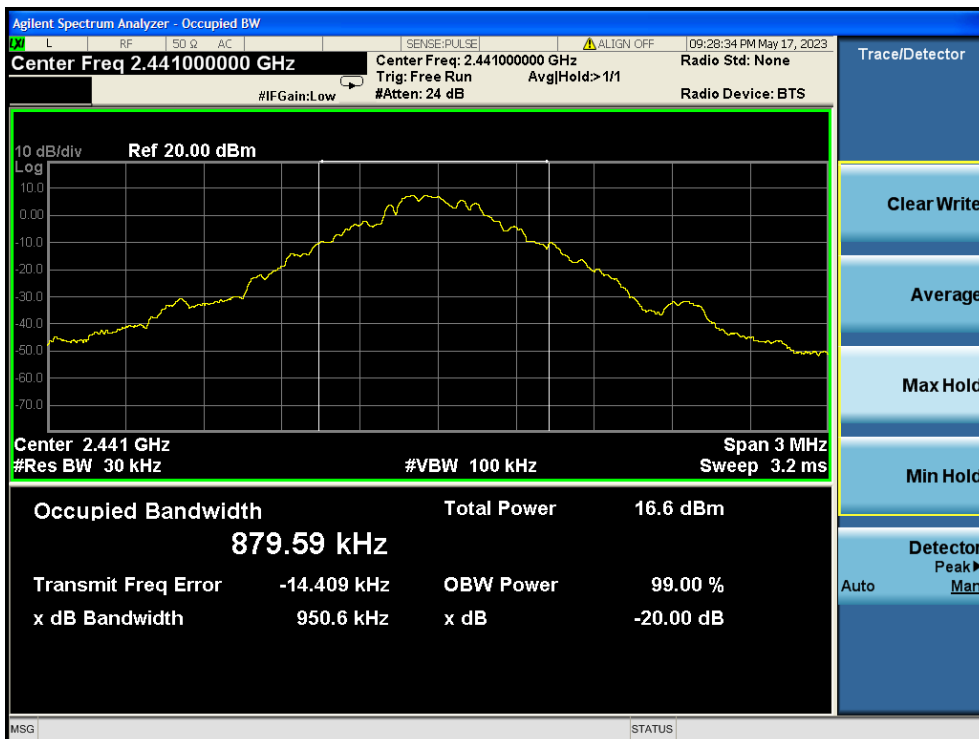
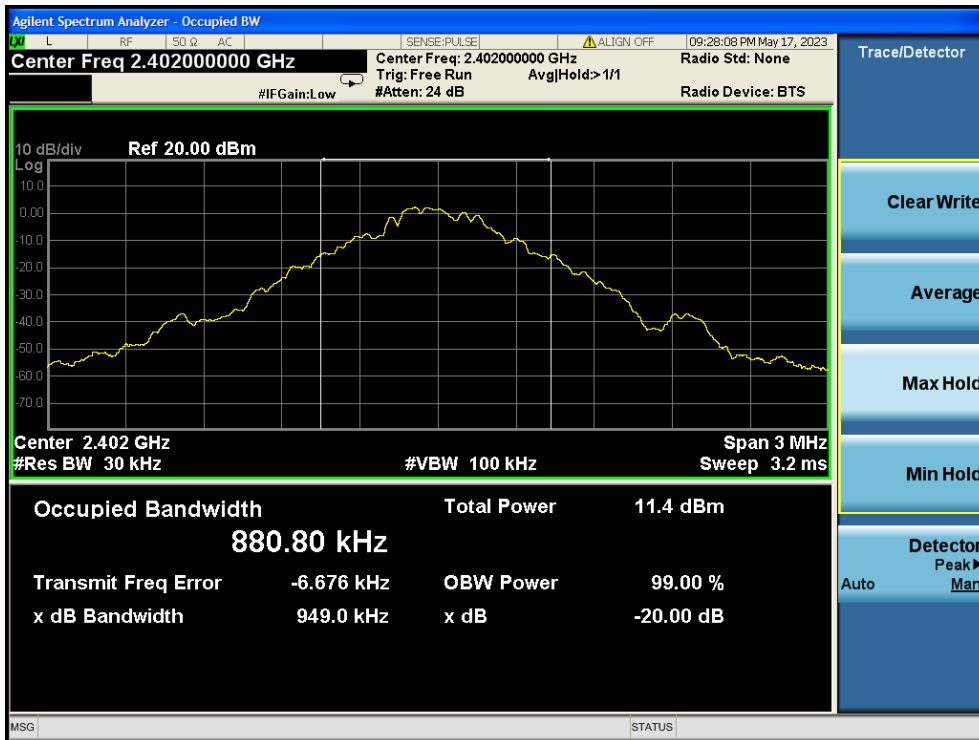
#### Type of Modulation: GFSK

EUT	NovoDS Digital Signage Solution		Model	DS310
Mode	Keep Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Channel	Channel Frequency (MHz)	20 dB Bandwidth (kHz)	Minimum Limit (kHz)	Pass/ Fail
Low	2402	949.0	--	Pass
Middle	2441	950.6	--	Pass
High	2480	950.5	--	Pass

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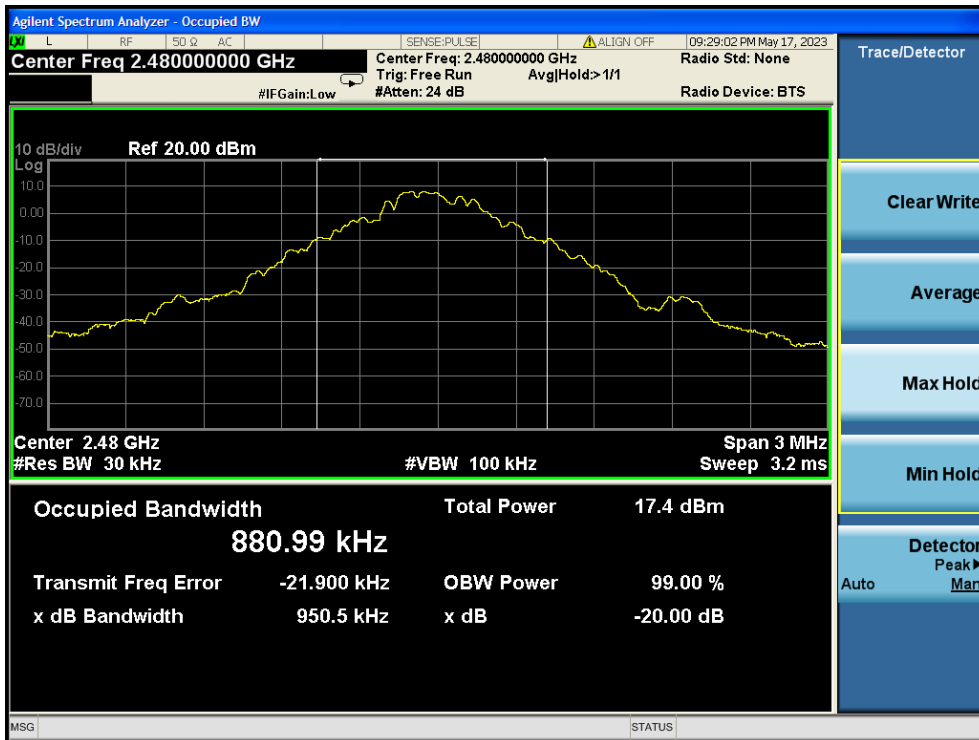
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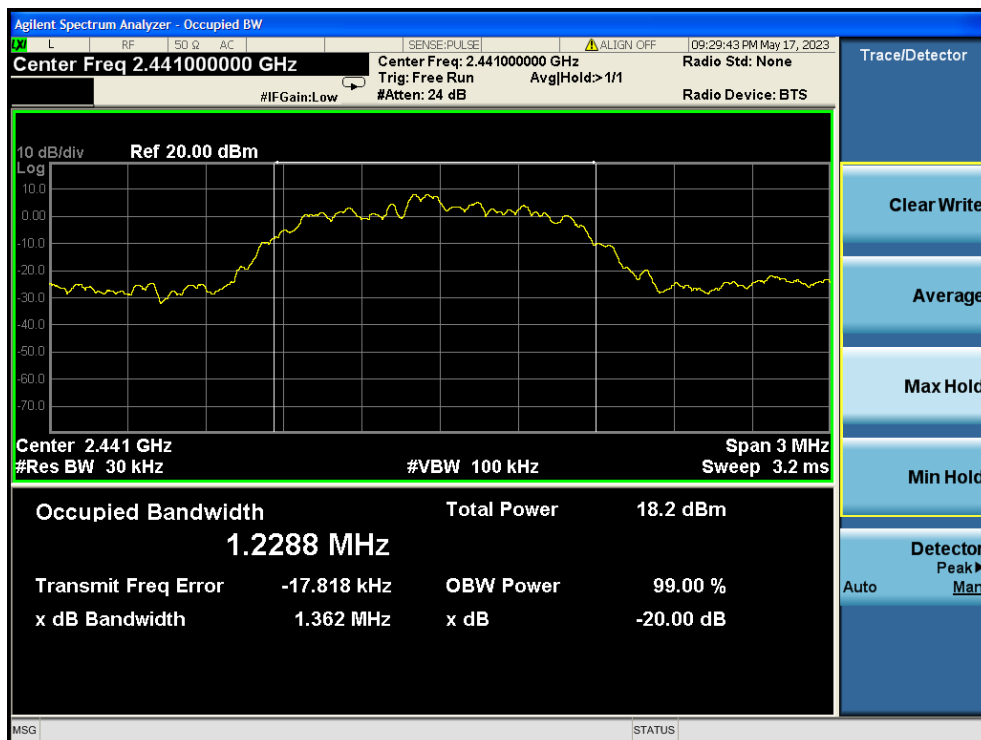
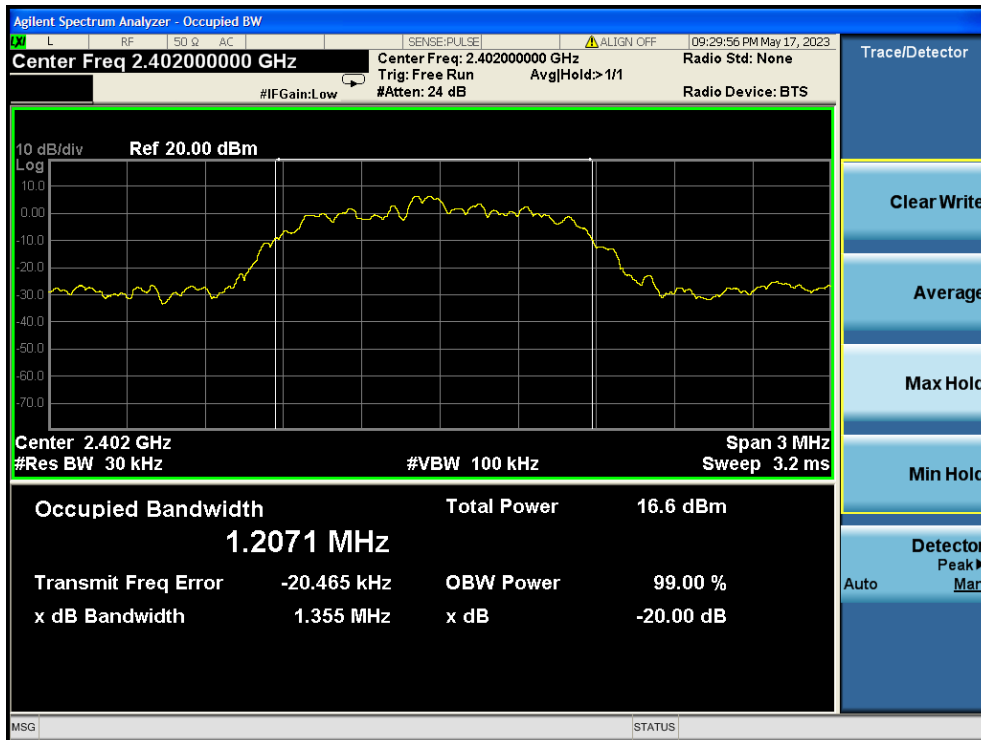
**Type of Modulation:  $\pi/4$ DQPSK**

EUT	NovoDS Digital Signage Solution		Model	DS310
Mode	Keep Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Channel	Channel Frequency (MHz)	20 dB Bandwidth (MHz)	Maximum Limit (kHz)	Pass/ Fail
Low	2402	1.355	--	Pass
Middle	2441	1.362	--	Pass
High	2480	1.361	--	Pass

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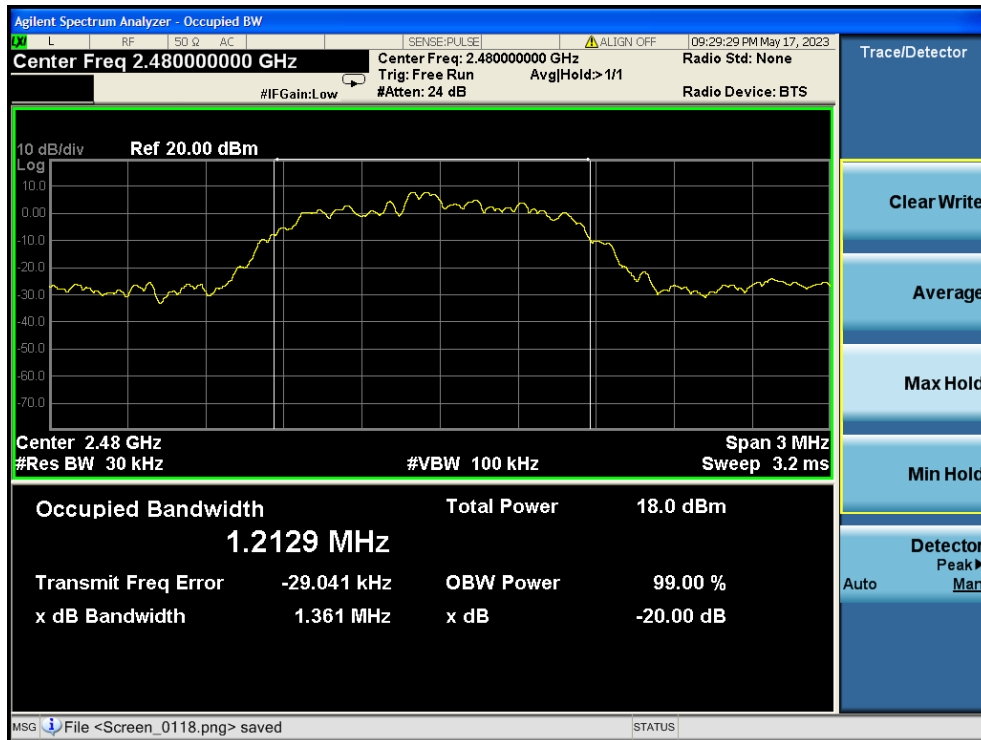
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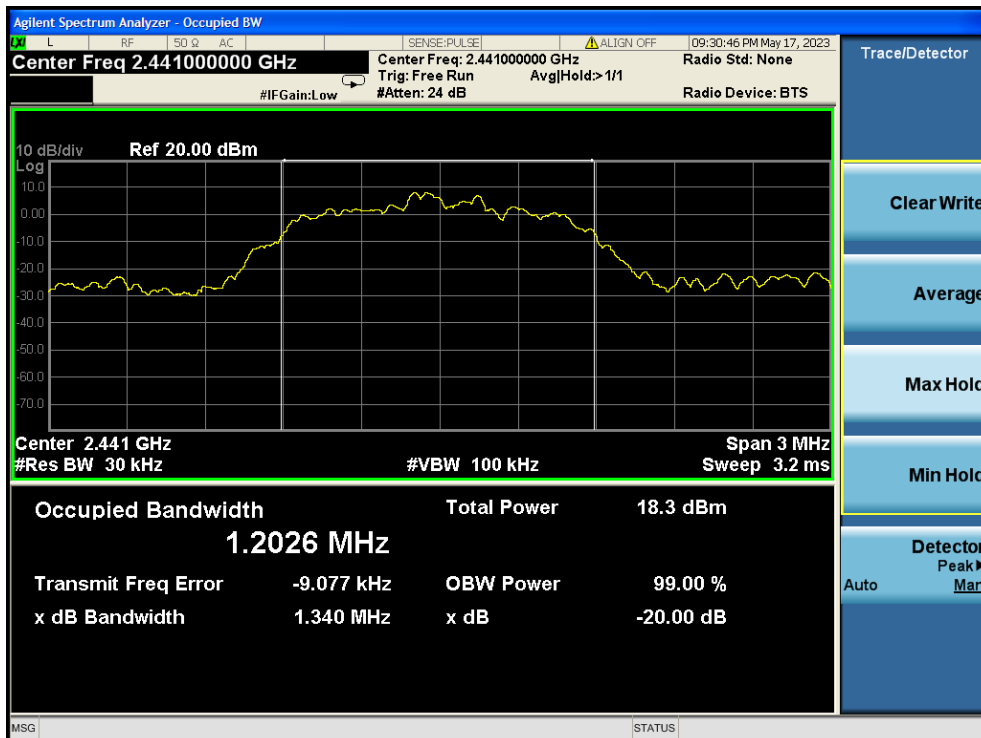
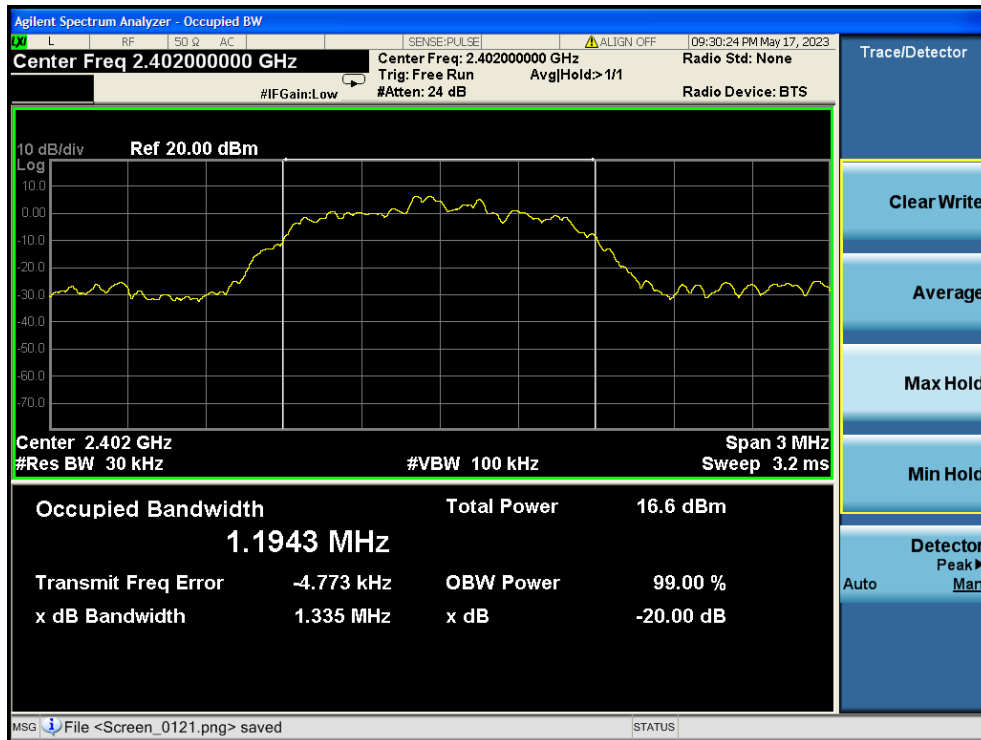
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**Type of Modulation: 8DPSK**

EUT	NovoDS Digital Signage Solution		Model	DS310
Mode	Keep Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Channel	Channel Frequency (MHz)	20 dB Bandwidth (MHz)	Maximum Limit (kHz)	Pass/ Fail
Low	2402	1.335	--	Pass
Middle	2441	1.340	--	Pass
High	2480	1.332	--	Pass

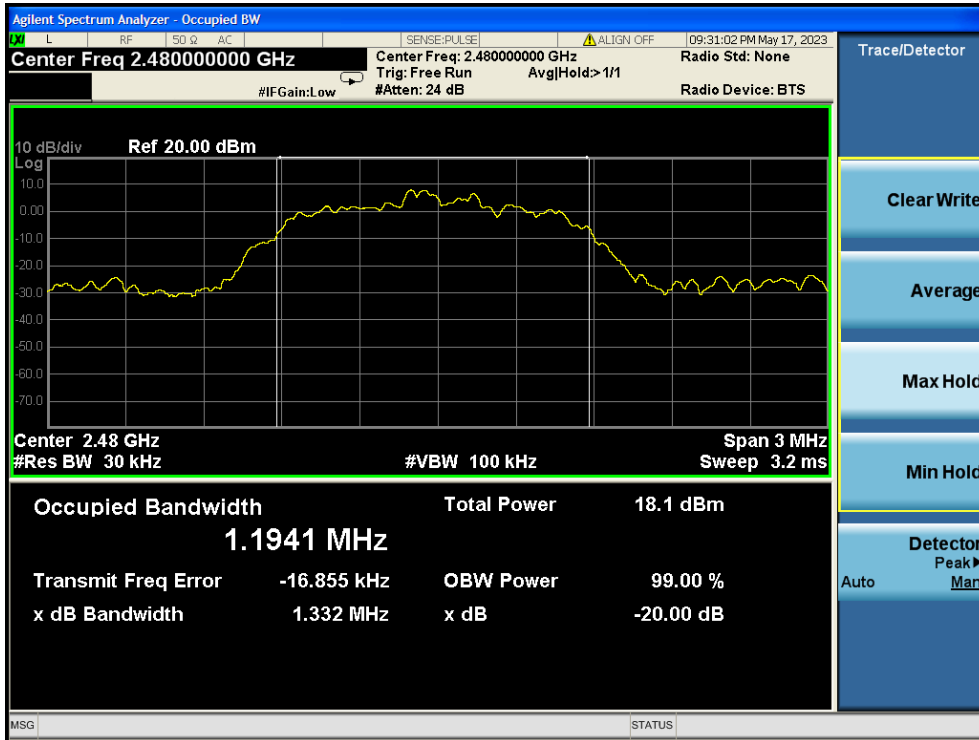
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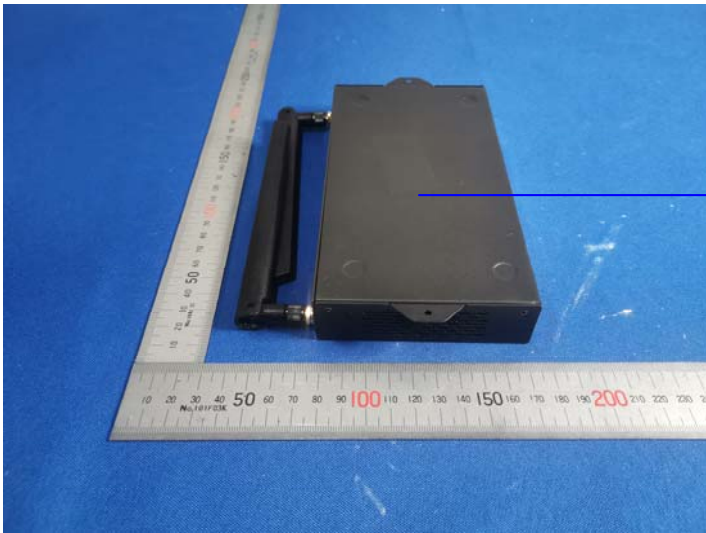
## 10.0 FCC ID Label

### FCC ID: H79-023DS3

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

### Mark Location:



FCC Label Location

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**11.0** Photo of testing

Conducted Emission Test Setup:



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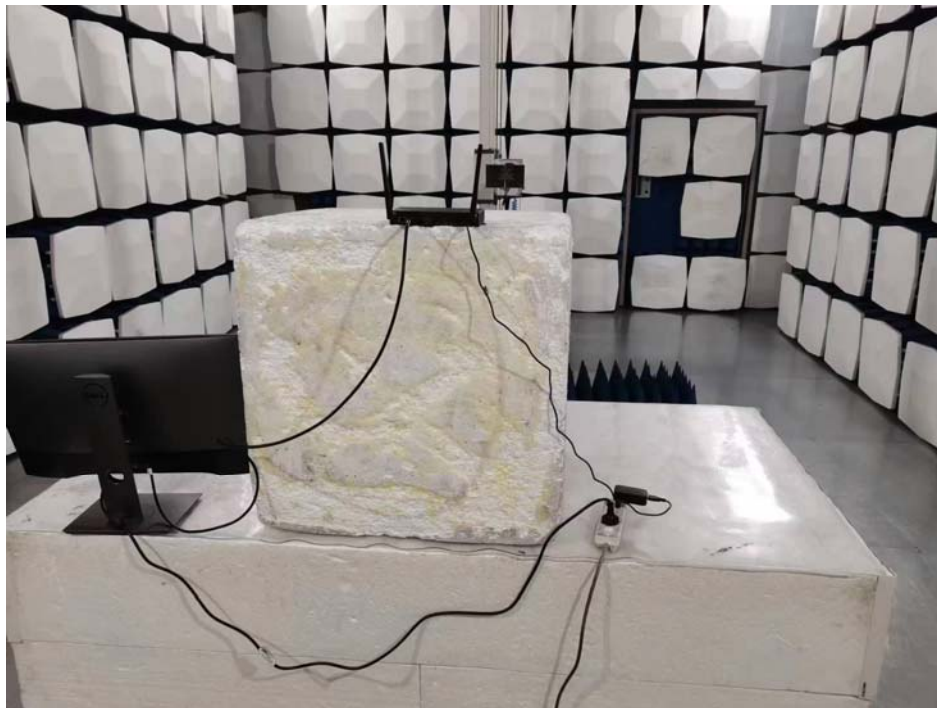
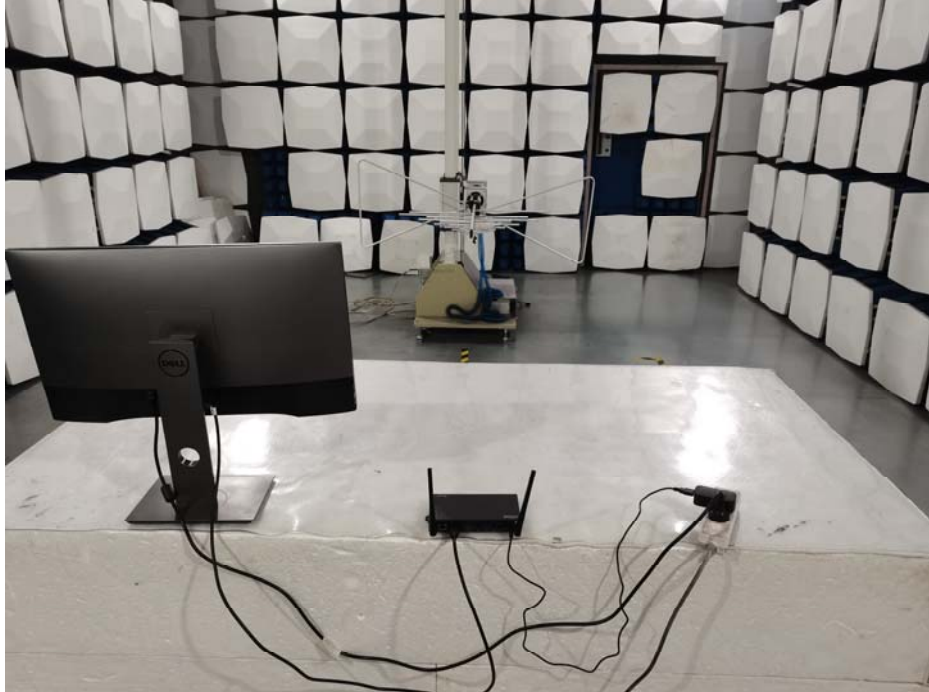
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Radiated emission test view



**Photographs – EUT**

Please refer test report TW2305193-01E

**--End of the report--**

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