

Fiture Holding LLC

TEST REPORT

SCOPE OF WORK

FCC TESTING—FITURE S1US Classic

REPORT NUMBER

211008053SZN-002

ISSUE DATE

03 December 2021

[REVISED DATE]

[-----]

PAGES

24

DOCUMENT CONTROL NUMBER

FCC ID 249_C

© 2017 INTERTEK



Fiture Holding LLC

Application
For
Certification

FCC ID: 2A3CUS1US

Smart Mirror

Model: FITURE S1US Classic

Brand Name: FITURE

2.4GHz Transceiver

Report No.: 211008053SZN-002

We hereby certify that the sample of the above item is considered to comply with the requirements of FCC Part 15, Subpart C for Intentional Radiator, mention 47 CFR [10-1-20]

Prepared and Checked by:

Approved by:

Jeff Liang
Engineer

Sewen Guo
Senior Project Engineer
Date: 03 December 2021

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

Intertek Testing Services 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 II Change _____

Equipment Type: DXX - Part 15 Low Power Communication Device Transmitter

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 C for intentional radiator – the new 47 CFR [10-1-20 Edition] provision.

Report prepared by:

Jeff Liang
Intertek Testing Services Shenzhen Ltd. Longhua Branch
101, 201, Building B, No. 308 Wuhe Avenue, Zhangkengjing
Community, GuanHu Subdistrict, LongHua District, ShenZhen,
P.R. China
Tel / Fax: 86-755-8614 0743/86-755-8601 6661

Table of Contents

1.	Summary of Test Result	4
2.	General Description	5
2.1	Product Description	5
2.2	Related Submittal(s) Grants.....	5
2.3	Test Methodology.....	5
2.4	Test Facility	5
3.	System Test Configuration	6
3.1	Justification	6
3.2	EUT Exercising Software	6
3.3	Special Accessories	6
3.4	Equipment Modification.....	6
3.5	Measurement Uncertainty	7
3.6	Support Equipment List and Description.....	7
4.	Emission Results	8
4.1	Radiated Test Results.....	8
4.1.1	Field Strength Calculation.....	8
4.1.2	Radiated Emission Configuration Photograph	9
4.1.3	Radiated Emissions	9
4.1.4	Transmitter Spurious Emissions (Radiated).....	12
4.2	Conducted Emission Configuration Photograph	15
4.2.1	Conducted Emission	15
5.	Equipment Photographs	18
6.	Product Labelling	18
7.	Technical Specifications	18
8.	Instruction Manual	18
9.	Miscellaneous Information	19
9.1	Bandedge Plot.....	19
9.2	20dB bandwidth.....	21
9.3	Discussion of Pulse Desensitization	22
9.4	Calculation of Average Factor.....	22
9.5	Emissions Test Procedures	23
10.	Test Equipment List	24

1. Summary of Test Result

Applicant: Fiture Holding LLC

Applicant Address: 1013 Centre Road, Suite 403S, Wilmington New Castle Delaware United States

Manufacturer: Fiture Holding LLC

Manufacturer Address: 1013 Centre Road, Suite 403S, Wilmington New Castle Delaware United States

MODEL: FITURE S1US Classic

FCC ID: 2A3CUS1US

Test Specification	Reference	Results
Transmitter Radiated Emission	15.249 & 15.209 & 15.205	Pass
Conducted Emission	15.207	Pass
Bandedge	15.249 & 15.209 & 15.205	Pass
20dB Bandwidth	15.215(c)	Pass

Notes: The EUT uses an Integral Antenna which in accordance to Section 15.203 is considered sufficient to comply with the provisions of this section.

2. General Description

2.1 Product Description

The equipment under test (EUT) is a Smart Mirror with 2.4G Wi-Fi function operating at 2412-2462MHz, 5G Wi-Fi function operating in 5150MHz~5250MHz, 5725MHz~5850MHz and Bluetooth 5.0 (dual-mode) function operating in 2402-2480MHz. The EUT is powered by AC120V/60Hz. For more detail information pls. refer to the user manual.

Antenna Type: Integral antenna

Modulation Type: GFSK

Antenna Gain: 4.21dBi Max

Bluetooth Version: 5.0

For electronic filing, the brief circuit description is saved with filename: descri.pdf.

2.2 Related Submittal(s) Grants

This is an application for certification of a transceiver for the Smart Mirror which has BT BLE function. For the BT BR/EDR function was tested and demonstrated in report 211008053SZN-001.

For the 2.4GHz WIFI function was tested and demonstrated in report 211008053SZN-003.

For the 5GHz WIFI function was tested and demonstrated in report 211008053SZN-004.

For the other function was tested and demonstrated in FCC SDoC report 211008053SZN-005.

2.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.10 (2013). 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. All other measurements were made in accordance with the procedures in part 2 of CFR 47.

2.4 Test Facility

The Semi-Anechoic chamber and shield 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. 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 C63.10 (2013).

The EUT was powered by AC120V/60Hz during the test, only the worst data was reported in this report.

For maximizing emissions below 30 MHz, the EUT was rotated through 360°, the centre of the loop antenna was placed 1 meter above the ground, and the antenna polarization was changed. 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. This step by step procedure for maximizing emissions led to the data reported in Section 4.

The EUT and transmitting antenna was centered on the turntable.

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 a turn table, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes.

3.2 EUT Exercising Software

The EUT exercise program (provided by client) used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use. The worst case configuration is used in all specified testing.

Table for Parameters of Test Software Setting

During testing, Channel & Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

Test software: WLAN Test Tool, Version: 2.6.3

3.3 Special Accessories

No special accessories used.

3.4 Equipment Modification

Any modifications installed previous to testing by Fiture Holding 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.

3.6 Support Equipment List and Description

N/A

4. Emission Results

Data is included worst-case configuration (the configuration which resulted in the highest emission levels).

4.1 Radiated Test Results

A sample calculation, configuration photographs and data tables of the emissions are included.

4.1.1 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.

$$FS = RA + AF + CF - AG + PD + AV$$

Where

- FS = Field Strength in dB μ V/m
- RA = Receiver Amplitude (including preamplifier) in dB μ V
- CF = Cable Attenuation Factor in dB
- AF = Antenna Factor in dB
- AG = Amplifier Gain in dB
- PD = Pulse Desensitization in dB
- AV = Average Factor 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:

$$FS = RA + AF + CF - AG + PD + AV$$

Assume a receiver reading of 62.0 dB μ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted. The pulse desensitization factor of the spectrum analyzer was 0 dB, and the resultant average factor was -10 dB. The net field strength for comparison to the appropriate emission limit is 32 dB μ V/m. This value in dB μ V/m was converted to its corresponding level in μ V/m.

RA = 62.0 dB μ V
AF = 7.4 dB
CF = 1.6 dB
AG = 29.0 dB
PD = 0 dB
AV = -10 dB
 $FS = 62 + 7.4 + 1.6 - 29 + 0 = 42 \text{ dB}\mu\text{V/m}$

Level in μ V/m = Common Antilogarithm $[(42 \text{ dB}\mu\text{V/m})/20] = 125.9 \mu\text{V/m}$

4.1.2 Radiated Emission Configuration Photograph

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

4.1.3 Radiated Emissions

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.

Worst Case Radiated Emission
at
479.983000 MHz

Judgement: Passed by 3.2 dB

TEST PERSONNEL:

Sign on file

Jeff Liang, Engineer
Typed/Printed Name

1 November 2021
Date

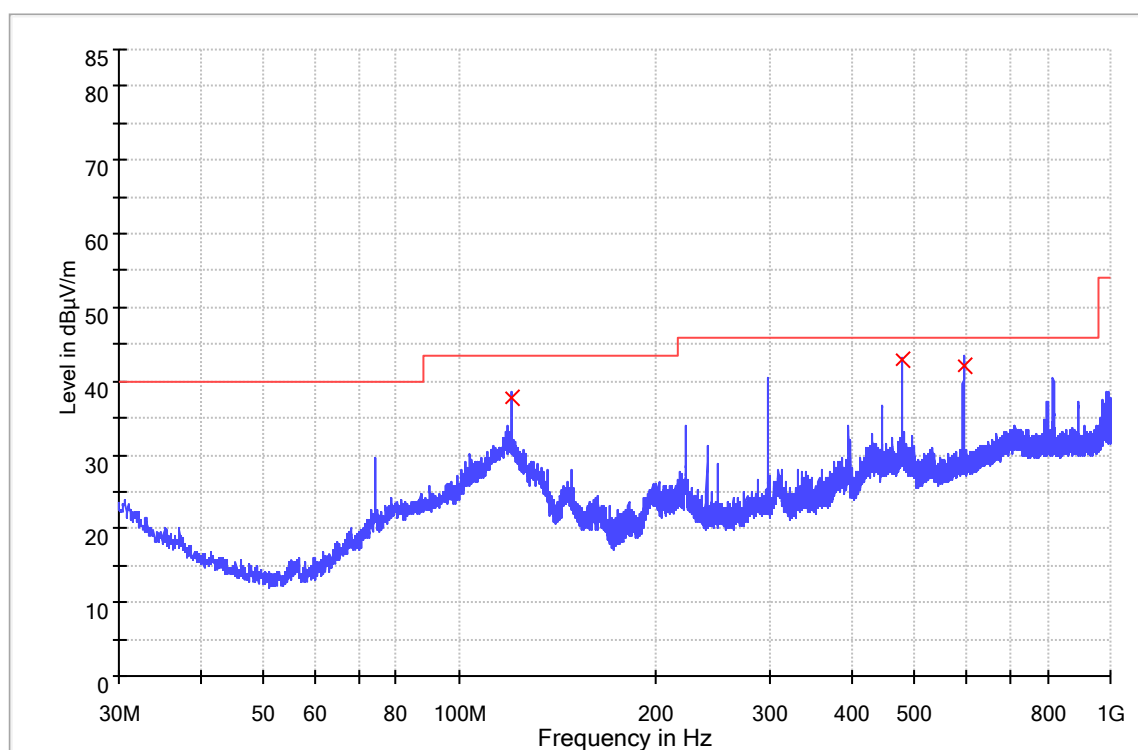
Applicant: Fiture Holding LLC

Model: FITURE S1US Classic

Date of Test: 1 November 2021

Worst Case Operating Mode: Simultaneous transmission

ANT Polarity: Horizontal



Frequency (MHz)	QuasiPeak (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBμV/m)
119.983667	37.8	1000.0	120.000	H	14.3	5.7	43.5
479.983000	42.8	1000.0	120.000	H	26.3	3.2	46.0
594.313667	42.0	1000.0	120.000	H	28.4	4.0	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)

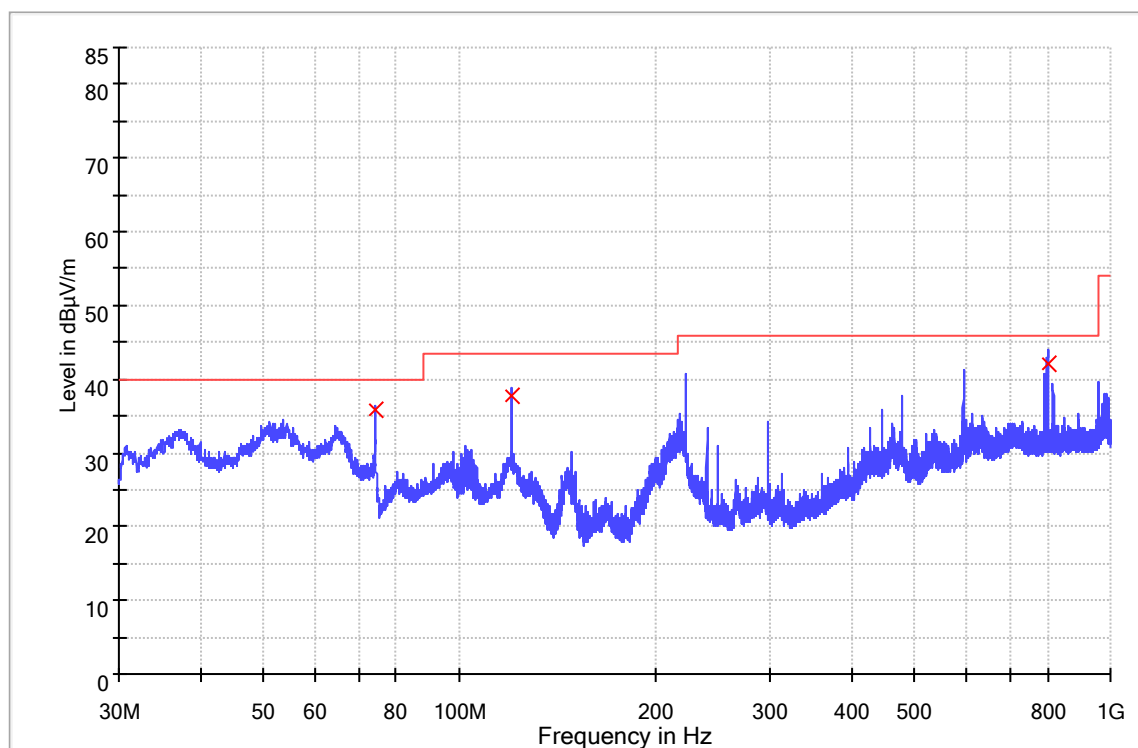
Applicant: Fiture Holding LLC

Model: FITURE S1US Classic

Date of Test: 1 November 2021

Worst Case Operating Mode: Simultaneous transmission

ANT Polarity: Vertical



Frequency (MHz)	QuasiPeak (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBμV/m)
74.264333	35.7	1000.0	120.000	V	13.7	4.3	40.0
119.983667	37.7	1000.0	120.000	V	14.3	5.8	43.5
800.050667	42.1	1000.0	120.000	V	32.0	3.9	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)

4.1.4 Transmitter Spurious Emissions (Radiated)

Worst Case Radiated Emission
at
2402.000 MHz

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

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 8.5 dB

TEST PERSONNEL:

Sign on file

Jeff Liang, Engineer
Typed/Printed Name

1 November 2021
Date

Applicant: Fiture Holding LLC

Model: FITURE S1US Classic

Date of Test: 1 November 2021

Worst Case Operating Mode: Transmitting

Table 1

Radiated Emissions

(2402MHz)

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	2402.000	111.5	36.7	28.1	102.9	114.0	-11.1
Horizontal	4804.000	40.4	36.7	35.5	39.2	74.0	-34.8
Horizontal	7206.000	46.1	36.1	36.5	46.5	74.0	-27.5
Horizontal	9608.000	48.6	36.3	38.0	50.3	74.0	-23.7

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	2402.000	111.5	36.7	28.1	85.5	94.0	-8.5
Horizontal	4804.000	40.4	36.7	35.5	33.4	54.0	-20.6
Horizontal	7206.000	46.1	36.1	36.5	39.9	54.0	-14.1
Horizontal	9608.000	48.6	36.3	38.0	44.0	54.0	-10.0

Table 2

Radiated Emissions

(2440MHz)

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	2440.000	110.4	36.7	28.1	101.8	114.0	-12.2
Horizontal	4880.000	40.6	36.7	35.5	39.4	74.0	-34.6
Horizontal	7320.000	42.6	36.1	37.2	43.7	74.0	-30.3
Horizontal	9760.000	46.6	36.2	37.0	47.4	74.0	-26.6

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	2440.000	110.4	36.7	28.1	84.5	94.0	-9.5
Horizontal	4880.000	40.6	36.7	35.5	34.5	54.0	-19.5
Horizontal	7320.000	42.6	36.1	37.2	38.0	54.0	-16.0
Horizontal	9760.000	46.6	36.2	37.0	41.4	54.0	-12.6

Table 3

Radiated Emissions

(2480MHz)

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	2480.000	108.9	36.7	28.1	100.3	114.0	-13.7
Horizontal	4960.000	39.8	36.7	35.5	38.6	74.0	-35.4
Horizontal	7440.000	42.7	36.1	37.2	43.8	74.0	-30.2
Horizontal	9920.000	45.9	36.3	38.9	48.5	74.0	-25.5

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	2480.000	108.9	36.7	28.1	83.8	94.0	-10.2
Horizontal	4960.000	39.8	36.7	35.5	32.5	54.0	-21.5
Horizontal	7440.000	42.7	36.1	37.2	38.9	54.0	-15.1
Horizontal	9920.000	45.9	36.3	38.9	42.7	54.0	-11.3

Notes:

1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meter. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna is used for the emission over 1000MHz.

Test Engineer: Jeff Liang

4.2 Conducted Emission Configuration Photograph

For electronic filing, the worst case radiated emission configuration photographs.
are saved with filename: conducted photos.pdf.

4.2.1 Conducted Emission

Worst Case Conducted Configuration
at
0.198000MHz

Judgement: Passed by 11.7dB margin

TEST PERSONNEL:

Sign on file

Jeff Liang, Engineer
Typed/Printed Name

25 October 2021
Date

Applicant: Fiture Holding LLC

Model: FITURE S1US Classic

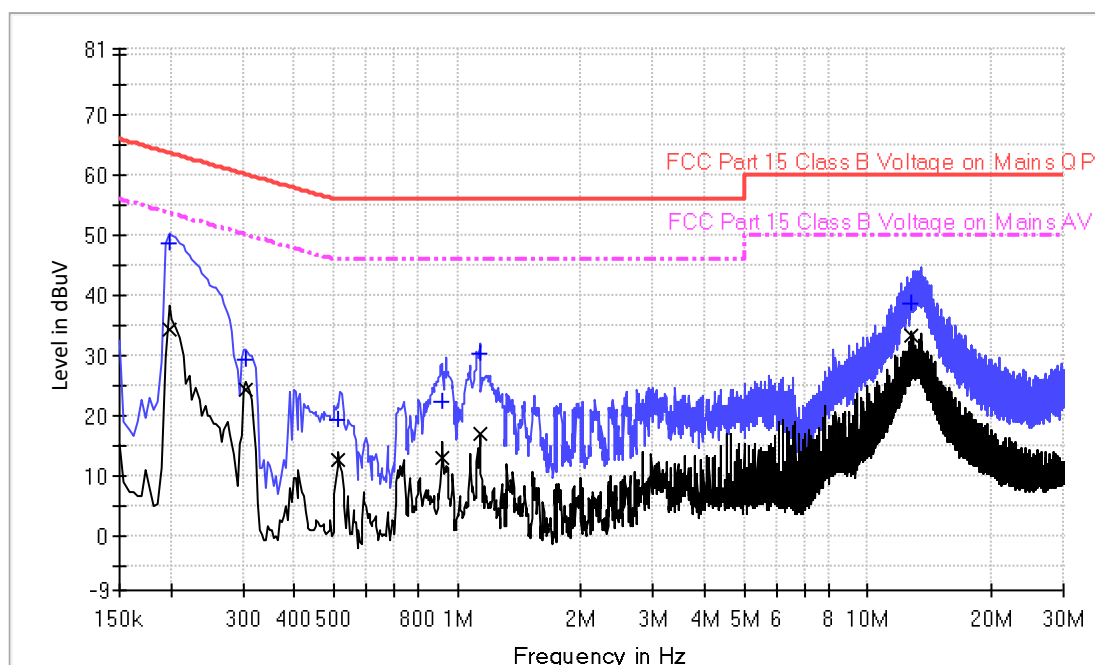
Date of Test: 25 October 2021

Worst Case Operating Mode: Simultaneous transmission

Phase: Live

Graphic / Data Table

Conducted Emissions Pursuant to FCC 15.207: Emissions Requirement



Limit and Margin QP

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.198000	48.8	9.000	L1	9.6	14.9	63.7
0.306000	29.3	9.000	L1	9.6	30.8	60.1
0.514000	19.2	9.000	L1	9.6	36.8	56.0
0.922000	22.4	9.000	L1	9.6	33.6	56.0
1.130000	30.2	9.000	L1	9.6	25.8	56.0
12.818000	38.6	9.000	L1	9.9	21.4	60.0

Limit and Margin AV

Frequency (MHz)	Average (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.198000	34.4	9.000	L1	9.6	19.3	53.7
0.306000	24.3	9.000	L1	9.6	25.8	50.1
0.514000	12.6	9.000	L1	9.6	33.4	46.0
0.922000	13.1	9.000	L1	9.6	32.9	46.0
1.130000	17.1	9.000	L1	9.6	28.9	46.0
12.818000	33.2	9.000	L1	9.9	16.8	50.0

Applicant: Fiture Holding LLC

Model: FITURE S1US Classic

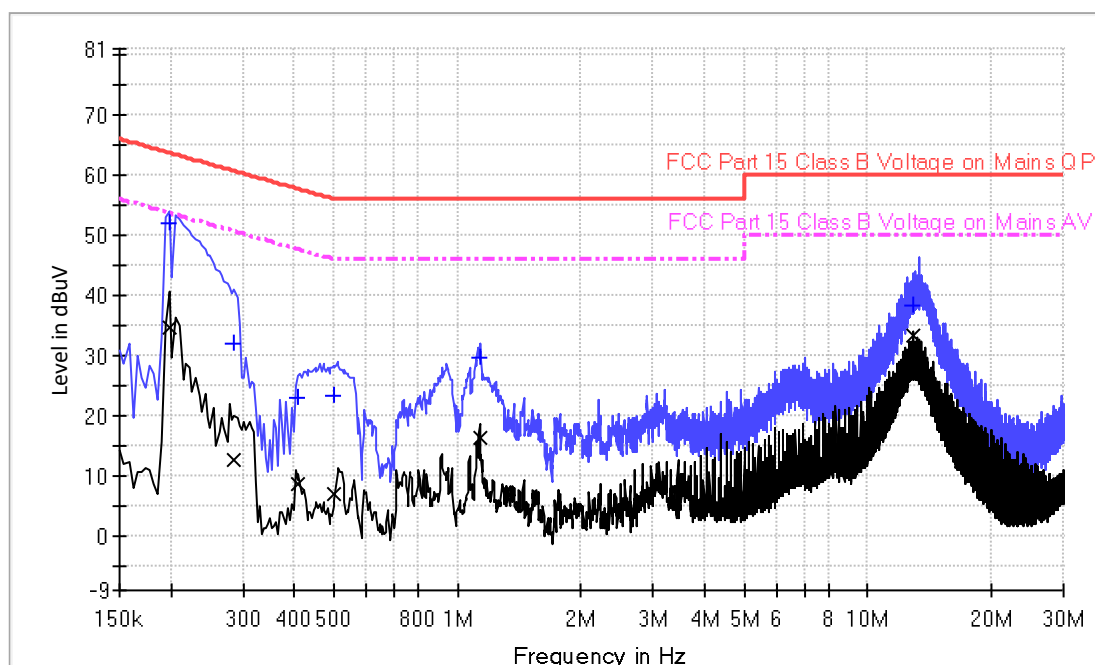
Date of Test: 25 October 2021

Worst Case Operating Mode: Simultaneous transmission

Phase: Neutral

Graphic / Data Table

Conducted Emissions Pursuant to FCC 15.207: Emissions Requirement



Limit and Margin QP

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.198000	52.0	9.000	N	9.5	11.7	63.7
0.286000	32.0	9.000	N	9.5	28.6	60.6
0.410000	23.1	9.000	N	9.5	34.5	57.6
0.502000	23.4	9.000	N	9.5	32.6	56.0
1.130000	29.6	9.000	N	9.5	26.4	56.0
12.954000	38.4	9.000	N	9.9	21.6	60.0

Limit and Margin AV

Frequency (MHz)	Average (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.198000	34.5	9.000	N	9.5	19.2	53.7
0.286000	12.7	9.000	N	9.5	37.9	50.6
0.410000	8.5	9.000	N	9.5	39.1	47.6
0.502000	7.0	9.000	N	9.5	39.0	46.0
1.130000	16.3	9.000	N	9.5	29.7	46.0
12.954000	33.2	9.000	N	9.9	16.8	50.0

5. Equipment Photographs

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

6. Product Labelling

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

7. Technical Specifications

For electronic filing, the block diagram and schematics of the tested EUT are saved with filename: block.pdf and circuit.pdf respectively.

8. 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. Miscellaneous Information

This miscellaneous information includes details of the measured bandedge, 20dB Bandwidth, the test procedure and calculation of factor such as pulse desensitization.

9.1 Bandedge Plot

The test plots are attached as below. From the below plots, the field strength of any emissions outside of the specified frequency band are attenuated to the general radiated emission limits in section 15.209. It fulfils the requirement of 15.249(d).

Peak Measurement

Bandedge compliance is determined by applying marker-delta method, i.e (Bandedge Plot).

(i) Lowest frequency channel (2402MHz):

Peak Resultant field strength = Fundamental emissions (peak value) – delta from the bandedge plot

$$\begin{aligned} &= 102.90 \text{ dB}\mu\text{v/m} - 53.88 \text{ dB} \\ &= 49.02 \text{ dB}\mu\text{v/m} \end{aligned}$$

Average Resultant field strength = Fundamental emissions (average value) – delta from the bandedge plot

$$\begin{aligned} &= 85.50 \text{ dB}\mu\text{v/m} - 53.88 \text{ dB} \\ &= 31.62 \text{ dB}\mu\text{v/m} \end{aligned}$$

(ii) Highest frequency channel (2480MHz)

Peak Resultant field strength = Fundamental emissions (peak value) – delta from the bandedge plot

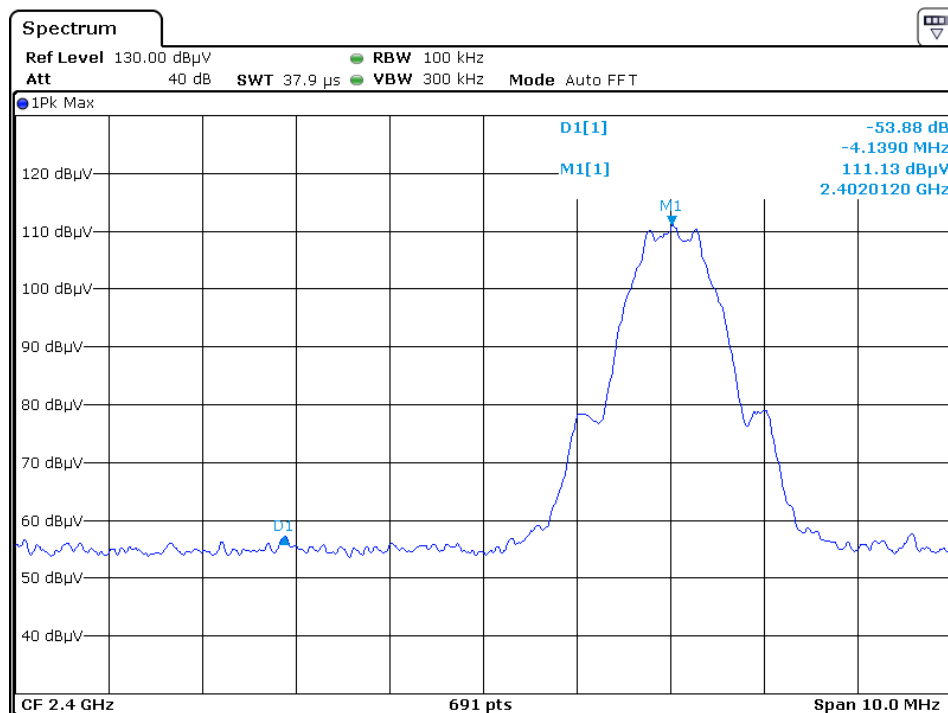
$$\begin{aligned} &= 100.30 \text{ dB}\mu\text{v/m} - 53.64 \text{ dB} \\ &= 46.66 \text{ dB}\mu\text{v/m} \end{aligned}$$

Average Resultant field strength = Fundamental emissions (average value) – delta from the bandedge plot

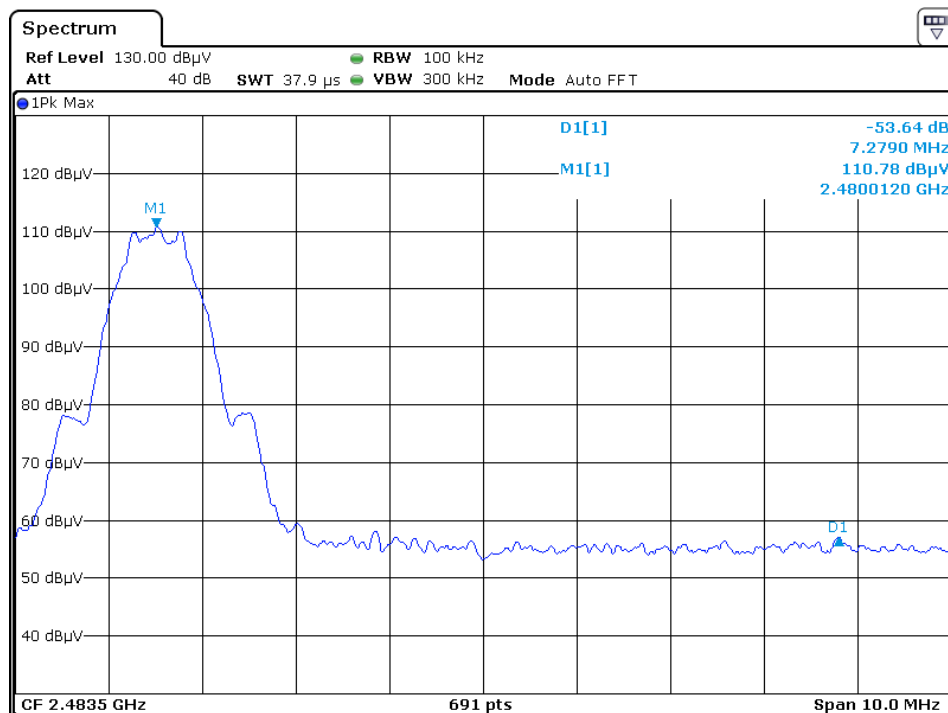
$$\begin{aligned} &= 83.80 \text{ dB}\mu\text{v/m} - 53.64 \text{ dB} \\ &= 30.16 \text{ dB}\mu\text{v/m} \end{aligned}$$

The resultant field strength meets the general radiated emission limit in section 15.209, which does not exceed 74dBμv/m (Peak Limit) and 54dBμv/m (Average Limit).

Lowest frequency Channel

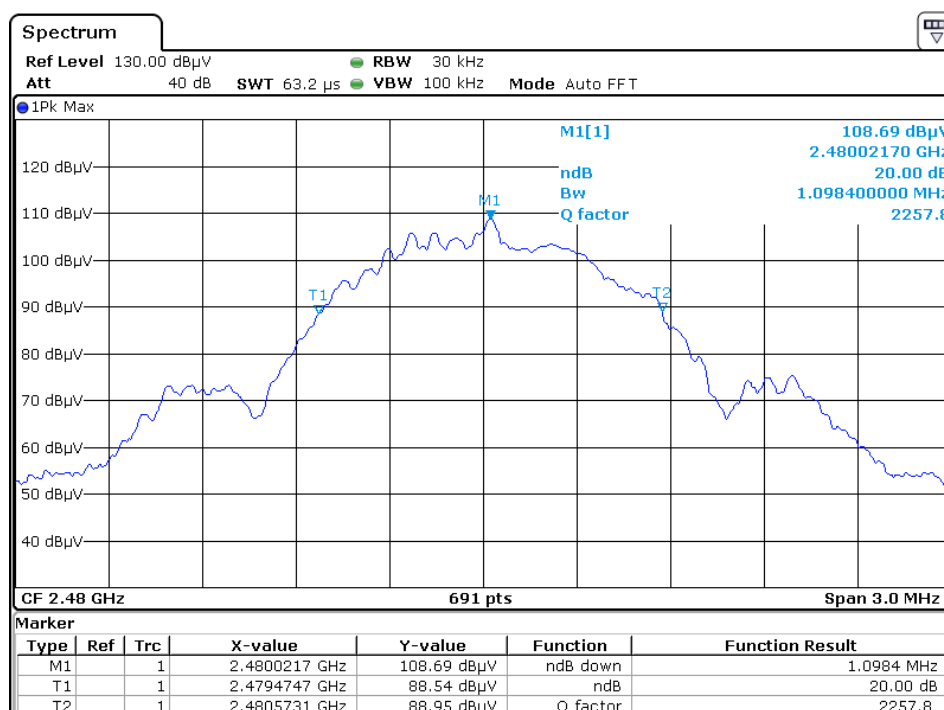
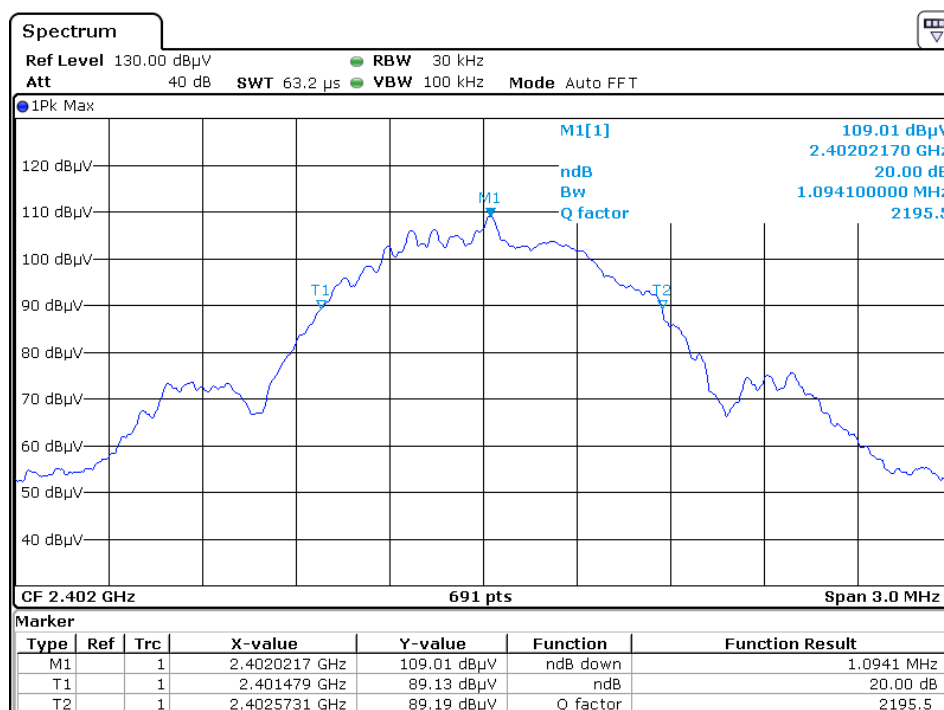


Highest frequency Channel



9.2 20dB bandwidth

Pursuant to FCC part 15 Section 15.215(c), the 20dB bandwidth of the emission was contained within the frequency band designated (mentioned as above) which the EUT operated. The effects, if any, from frequency sweeping, frequency hopping, other modulation techniques and frequency stability over excepted variations in temperature and supply voltage were considered. The test plots are reported as below.



9.3 Discussion of Pulse Desensitization

Pulse desensitivity is not applicable for this device since the transmitter transmits the RF signal continuously.

9.4 Calculation of Average Factor

The EUT antenna output port was connected to the input of the spectrum analyzer. The analyzer center frequency was set to EUT RF channel carrier. The SWEP function on the analyzer was set to ZERO SPAN. The Transmitter ON time was determined from the resultant time-amplitude display:

	See attached spectrum analyzer chart (s) for Transmitter timing
	See Transmitter timing diagram provided by manufacturer
x	Not applicable, duty cycle was not used.

9.5 Emissions Test Procedures

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

The test set-up and procedures described below are designed to meet the requirements of ANSI C63.10 - 2013.

The transmitting equipment under test (EUT) is placed on a styrene turntable which is four feet in diameter and approximately 0.1 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 EUT is adjusted through all three orthogonal axes to obtain maximum emission levels. The antenna height and polarization are varied during the testing to search for maximum signal levels.

Detector function for radiated emissions is in peak mode. Average readings, when required, are taken by measuring the duty cycle of the equipment under test and subtracting the corresponding amount in dB from the measured peak readings. A detailed description for the calculation of the average factor can be found in section 9.4.

The frequency range scanned is from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or 40 GHz, whichever is lower.

Detector function for conducted emissions is in QP & AV mode and IFBW setting is 9 kHz from the frequency band 150 kHz to 30MHz.

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

AC power to the unit is varied from 85% to 115% nominal and variation in the fundamental emission field strength is recorded. If battery powered, a new, fully charged battery is used.

Conducted measurements are made as described in ANSI C63.10 - 2013.

The IF bandwidth used for measurement of radiated signal strength was 10 kHz for emission below 30 MHz and 120 kHz for emission from 30 MHz to 1000 MHz. Where pulsed transmissions of short enough pulse duration warrant, a greater bandwidth is selected according to the recommendations of Hewlett Packard Application Note 150-2. Above 1000 MHz, a resolution bandwidth of 1 MHz is used (RBW 3MHz used for fundamental emission).

Transmitter measurements are normally conducted at a measurement distance of three meters. However, to assure low enough noise floor in the restricted bands and above 1 GHz, signals are acquired at a distance of one meter or less. All measurements are extrapolated to three meters using inverse scaling, but those measurements taken at a closer distance are so marked.

10. Test Equipment List

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
SZ056-06	Signal Analyzer	R&S	FSV 40	101101	2020-12-22	2021-12-22
SZ062-10	RF Cable	Bedeia	RG 58	--	2021-06-01	2021-12-01
SZ056-08	Signal Analyzer	R&S	FSV 40	101430	2020-12-22	2021-12-22
SZ185-03	EMI Receiver	R&S	ESR7	101975	2020-12-22	2021-12-22
SZ061-06	Active Loop Antenna	Electro-Metrics	EM-6876	217	2021-05-18	2023-05-18
SZ061-12	BiConiLog Antenna	ETS	3142E	00166158	2021-08-04	2024-08-04
SZ061-09	Double-Ridged Waveguide Horn Antenna	ETS	3115	00092347	2020-10-17	2022-10-17
SZ061-15	Double-Ridged Waveguide Horn Antenna	ETS	3116C-PA	00224718	2021-07-06	2024-07-06
SZ181-08	Microwave System Amplifier	Agilent	83017A	MY57280108	2021-08-04	2022-08-04
SZ188-05	Anechoic Chamber	ETS	FACT 3-2.0	CT001880-Q1391	2021-05-25	2024-05-25
SZ062-23	RF Cable	RADIAL	SF104PE	MY4262/4PE	2021-09-26	2022-09-26
SZ062-35	RF Cable	Rebes	A50-3.5M3.5M-8M	19100879	2021-09-26	2022-09-26
SZ067-04	Notch Filter	Micro-Tronics	BRM50702-02	015	2021-05-11	2022-05-11
SZ185-02	EMI Test Receiver	R&S	ESCI	100692	2021-07-12	2022-07-12
SZ187-02	Two-Line V-Network	R&S	ENV216	100072	2021-05-12	2022-05-12
SZ188-03	Shielding Room	ETS	RFD-100	4100	2020-01-07	2023-01-07

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