FCC PART 15 SUBPART B & SUBPART C SECTION 15.249, RSS 210 and RSS GEN TEST REPORT

for

Wireless Remote
Model: ACC-REMOTE-C7T

Prepared for

SMALL HD, LLC
301 GREGSON
CARY, NC 27511

Prepared by: _____

HOWARD HUANG

Approved by: _____

JOEY MADLANGBAYAN

COMPATIBLE ELECTRONICS INC.
20621 PASCAL WAY
LAKE FOREST, CALIFORNIA 92630
(949) 587-0400

DATE: NOVEMBER 11, 2019

	REPORT BODY	APPENDICES					TOTAL
		A	***B***	***C***	***D***	***E***	
PAGES	19	2	2	2	13	21	**59**

NVLAP TESTING
NVLAP LAB CODE 200527-0
ilac-MRA

TABLE OF CONTENTS

LIST OF APPENDICES

APPENDIX	TITLE
A	Laboratory Accreditations and Recognitions
B	Modifications to the EUT
C	Additional Models Covered Under This Report
D	Diagrams, Charts, and Photos • Test Setup Diagrams • Antenna and Amplifier Factors • Radiated Emissions Photos
E	Radiated Emissions Data Sheets

LIST OF FIGURES

FIGURE	TITLE
1	Plot Map and Layout of Test Site Below 1GHz
2	Plot Map and Layout of Test Site Above 1GHz

GENERAL REPORT SUMMARY

This electromagnetic emission test report is generated by Compatible Electronics Inc., which is an independent testing and consulting firm. The test report is based on testing performed by Compatible Electronics personnel according to the measurement procedures described in the test specifications given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced in any form except in full, without the written permission of Compatible Electronics.

This report must not be used by the client to claim product certification, approval or endorsement by NVLAP, NIST, or any agency of the federal government.

Device Tested:	Wireless Remote Model: ACC-REMOTE-C7T S/N: None
Product Description:	The EUT is a camera-mounted or handheld wireless remote that transmits and receives wireless communications in the 2400 MHz band.
Modifications:	The EUT was not modified during the testing.
Manufacturer:	Small HD, LLC 301 Gregson Cary, NC 27511
Test Date:	November 6-8, 2019

Test Specifications Covered by Accreditation:

NVLAP TESTING
NVLAP LAB CODE 200527-0

ilac-MRA

EMI requirements

CFR Title 47, Part 15 Subpart B Sections 15.109, Subpart C Sections 15.205, 15.209, 15.249, RSS 210, and RSS Gen

Test Procedure: ANSI C63.4 & C63.10

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz - 30 MHz.	The EUT does not connect to AC mains. Therefore, this test was deemed unnecessary, and thus was not performed.
2	Radiated RF Emissions & Harmonics, 9 kHz – 25 GHz.	Complies with the limits of RSS-210, RSS-GEN, CFR Title 47 Part 15 Subpart B Section 15.109 & Subpart C Section 15.205, 15.209, & 15.249

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Wireless Remote Model: ACC-REMOTE-C7T. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4 and C63.10. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT (equipment under test) hereafter, are within the specification limits defined by RSS-210, RSS-GEN, and the Code of Federal Regulations Title 47, Part 15 Subpart B sections, 15.109, & Part 15 Subpart C sections 15.205, 15.209 and 15.249.

2. ADMINISTRATIVE DATA

2.1 Location of Testing

The emissions tests described herein were performed at the test facility of Compatible Electronics, 20621 Pascal Way Lake Forest, California 92630.

2.2 Traceability Statement

The calibration certificates of all test equipment used during the test are on file at the location of the test. The calibration is traceable to the National Institute of Standards and Technology (NIST).

2.3 Cognizant Personnel

Small HD, LLC

Blake Johnson	Director of Research and Development

Compatible Electronics, Inc.

Joey Madlangbayan	Product Safety Manager
Howard Huang	Test Technician

2.4 Date Test Sample was Received

The test sample was received on November 6, 2019.

2.5 Disposition of the Test Sample

The test sample remains at Compatible Electronics, Inc.

2.6 Abbreviations and Acronyms

The following abbreviations and acronyms may be used in this document.

RF	Radio Frequency
EMI	Electromagnetic Interference
EMC	Electromagnetic Compatibility
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
HP	Hewlett Packard
ITE	Information Technology Equipment
CML	Corrected Meter Limit
LISN	Line Impedance Stabilization Network
NVLAP	National Voluntary Laboratory Accreditation Program
CFR	Code of Federal Regulations
PCB	Printed Circuit Board
TX	Transmit
RX	Receive
NCR	No Calibration Required
PSU	Power Supply Unit

3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this Test Report.

SPEC	TITLE
RSS 210	License-exempt Radio Apparatus (All Frequency Bands): Category I Equipment
RSS GEN	General Requirements for Compliance of Radio Apparatus
CFR Title 47, Part 15	FCC Rules – Radio frequency devices (including digital devices)
ANSI C63.4 2014	Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz.
ANSI C63.10: 2013	American National Standard for Testing Unlicensed Wireless Devices

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration

The Wireless Remote Model: ACC-REMOTE-C7T (EUT) was setup in a standalone tabletop configuration. The EUT was tested in the following configuration seen in the image below.

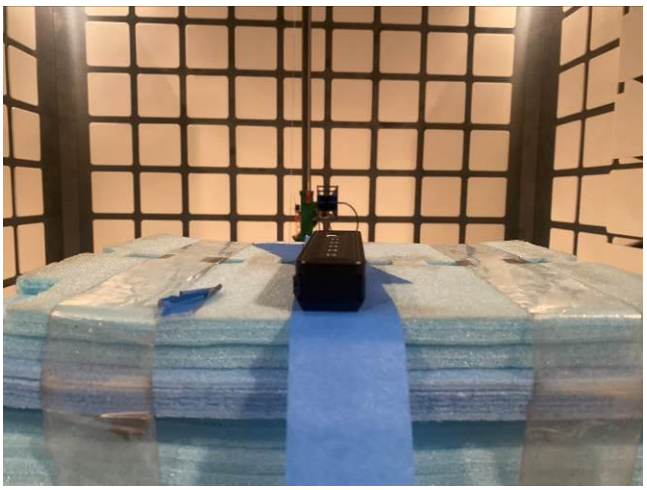
The EUT was checked in the x-axis, y-axis, and z-axis. The EUT was tested with a full battery. The worst case orientation was deemed to be the z-axis. The EUT was continuously transmitting a data stream during transmit tests.

It was determined that the emissions were at their highest level when the EUT was transmitting in the configuration described above for Radiated Emissions. The final radiated data was taken in the above configuration. Please see Appendix E for the test data.

4.1.1 Photograph Test Configuration

ANSI C63.4

ANSI C63.10



x-axis

y-axis

z-axis

4.1.2 Cable Construction and Termination

Cable 1

This is a 1 meter unshielded round cable that connects the monitor to the power supply unit. The cable has battery eliminator on the monitor side and has barrel connector on the PSU end.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

#	EQUIPMENT TYPE	MANUFACTURER	MODEL	SERIAL NUMBER
1	WIRELESS REMOTE (EUT)	SMALL HD	ACC-REMOTE-C7T	NONE
2	MONITOR	SMALL HD	CINE 7	C7AS192170017
3	PSU (MONITOR)	GENERIC	ZF120A-0842000	NONE

5.2 Emissions Test Equipment

EQUIPMENT TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. DUE DATE
Thermometer & Hygrometer	Davis Instruments	6312C	NONE	09/20/2018	09/20/2021
Computer	Compatible Electronics	NONE	NONE	NCR	NCR
EMI Receiver	Rohde & Schwarz	ESIB40	100172	03/22/2019	03/22/2020
Antenna, Loop	Com-Power	AL-130	121049	03/21/2019	03/21/2021
Antenna, CombiLog	Com-Power	AC-220	061105	03/12/2019	03/12/2020
Antenna, Horn 1-18GHz	Com-Power	AH-118	10050054	01/25/2019	01/25/2021
Antenna, Horn 18-26 GHz	Com-Power	AH-826	081078	07/22/2019	07/22/2021
Pre-Amp, 1-18GHz	Com-Power	PAM-118A	551034	01/28/2019	01/28/2020
Pre-Amp, 18-40GHz	Com-Power	PA-840	181289	07/23/2019	07/23/2020
Mast, Antenna Positioner	Sunol Science Corporation	TWR 95-4	020808-3	NCR	NCR
Turntable	Sunol Science Corporation	FM 2001	N/A	NCR	NCR
Mast and Turntable Controller	Sunol Science Corporation	SC104V	020808-1	NCR	NCR

6. TEST SITE DESCRIPTION

6.1 Test Facility Description

All the radiated & conducted emissions measurements were performed in a semi-anechoic chamber.

6.2 EUT Mounting, Bonding and Grounding

The EUT was mounted on a 1.0 by 1.5 by 0.8-meter-high non-conductive table for below 1GHz which was placed on the ground plane. For above 1 GHz the EUT was mounted 1.5 meters high.

The EUT was not grounded.

6.3 Facility Environmental Characteristics

When applicable refer to the data sheets in Appendix E for the relative humidity, air temperature, and barometric pressure.

6.4 Measurement Uncertainty

"Compatible Electronics' U_{lab} value is less than U_{cispr}, thus based on this − compliance is deemed to occur if no measured disturbance exceeds the disturbance limit

$$u_c(y) = \sqrt{\sum_i c_i^2 \; u^2(x_i)}$$

Measurement		U_{cispr}	$U_{lab} = 2\,uc\,(y)$
Conducted disturbance (mains port)	(150 kHz – 30 MHz)	3,4 dB	2.88
Radiated disturbance (electric field strength on an open area test site or alternative test site)	(30 MHz – 1 000 MHz)	6.3 dB	3.53
Radiated disturbance (electric field strength on an open area test site or alternative test site)	(1 GHz – 6 GHz)	5,2 dB	3.59
Radiated disturbance (electric field strength on an open area test site or alternative test site)	(6 GHz – 18 GHz)	5,5 dB	3.59
Radiated disturbance (electric field strength on an open area test site or alternative test site)	(18 GHz – 26 GHz)	N/A	3.71

7. CHARACTERISTICS OF THE TRANSMITTER

7.1 Channel Number and Frequencies

The Cine7 Wireless Remote has a frequency of operation from 2402 to 2480 MHz with a maximum output power of +1.05 dBm. The modulation used is GFSK with Nordic Bluetooth Low Energy Radio modulation mode and packet structure. The on-air data rates are 250 kbps and 1Mbps.

7.2 Software

Test Firmware

- Software version- 0.1
- Date- 09/18/2019
- Name- dtm-remote-button
- Storage- Internal Server

Factory Firmware

- Software version- 0.3
- Date- 09/23/2019
- Name- ble_cine7_remote
- Storage- Internal Server

8. TEST PROCEDURES

The following sections describe the test methods and the specifications for the tests. Test results are also included in this section.

8.1 RF Emissions

8.1.1 Conducted Emissions Test

Test Results: The EUT is battery powered and does not connect to the AC Mains. Therefore, this test was deemed unnecessary and thus was not performed. Had this test been deemed applicable, it would have been performed as described below.

The EMI Receiver was used as a measuring meter. A 10-dB attenuation pad was used for the protection of the EMI Receiver input stage. All factors associated with attenuator and cables were recorded into the EMI Software Program accordingly to display the actual corrected measured level. The LISN output was connected to the input of the EMI Receiver. The output of the second LISN was terminated with 50-ohm termination. The effective measurement bandwidth used for the conducted emissions test was 9 kHz.

Please see section 6.2 of this report for mounting, bonding, and grounding of the EUT. The EUT received its power through the LISN, which was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The initial test data was taken in manual mode while scanning the frequency ranges of 0.15 MHz to 30 MHz. The conducted emissions from the EUT were maximized for operating mode as well as cable placement. Once a predominant frequency (within 12 dB of the limit) was found, it was more closely examined with the spectrum analyzer span adjusted to 1 MHz.

The final data was collected under program control by the computer in several overlapping sweeps by running the EMI Receiver at a minimum scan rate of 10 seconds per octave.

8.1.2 Radiated Emissions (Spurious and Harmonics) Test

The EMI receiver was used as a measuring meter. The receiver was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the receiver records the highest measured reading over all the sweeps. Amplifiers were used to increase the sensitivity of the instrument. There was one Microwave Preamplifier used for frequencies above 1 GHz.

For spurious emissions, the quasi-peak detector was used for frequencies below 1GHz and the average detector was used for frequencies above 1 GHz.

For the Harmonic emissions, a linear average detector was used.

The measurement bandwidths and transducers used for the radiated emissions test were:

FREQUENCY RANGE (MHz)	TRANSDUCER	EFFECTIVE MEASUREMENT BANDWIDTH
.009 to .150	Active Loop Antenna	200 Hz
.150 to 30	Active Loop Antenna	9 kHz
30 to 1000	Combilog Antenna	100 kHz (120kHz for QP Measurements)
1000 to 25000	Horn Antenna	1 MHz

The TDK FAC-3 shielded test chamber of Compatible Electronics, Inc. was used for radiated emissions testing. This test site is in full compliance with ANSI C63.4 & ANSI C63.10. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters in both vertical and horizontal polarizations (for E field radiated field strength).

Test Results:

The EUT complies with the limits of RSS-210, RSS-GEN, CFR Title 47 Part 15 Subpart B section 15.109, & Part 15 Subpart C sections 15.205, 15.209 and 15.249.

8.1.3 Fundamental Field Strength

The Peak Transmit Radiated Field Strength was measured at a 3-meter test distance. The EMI Receiver was used to obtain the final test data. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with RSS-210 & Part 15 Subpart C, Section 15.249.

8.1.4 Emissions Radiated Outside of the Fundamental Frequency Band

The Band Edge measurement was measured using the EMI Receiver at a 3-meter test distance to obtain the final test data. The lower and upper channels were tuned during the low and high band edge tests. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with RSS-210 & Part 15 Subpart C, Section 15.205 & 15.249.

9. TEST PROCEDURE DEVIATIONS

There were no deviations from the test procedure.

10. CONCLUSIONS

The Wireless Remote Model: ACC-REMOTE-C7T meets all of the relevant specification requirements defined in RSS-210, RSS-GEN, and the Code of Federal Regulations Title 47, Part 15 Subpart B section, 15.109, & Subpart C sections 15.205, 15.209 and 15.249.

APPENDIX A

LABORATORY ACCREDITATIONS AND RECOGNITIONS

LABORATORY ACCREDITATIONS AND RECOGNITIONS

NVLAP TESTING
NVLAP LAB CODE 200527-0

ilac-MRA

For US, Canada, Australia/New Zealand, Japan, Taiwan, Korea, and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025.

For the most up-to-date version of our scopes and certificates please visit

http://celectronics.com/quality/scope/

Quote from ISO-ILAC-IAF Communiqué on 17025:

"A laboratory's fulfilment of the requirements of ISO/IEC 17025:2005 means the laboratory meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid test results and calibrations. The management system requirements in ISO/IEC 17025:2005 (Section 4) are written in language relevant to laboratory operations and meet the principles of ISO 9001:2008 Quality Management Systems — Requirements."

ISED# 2154C

APPENDIX B

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

There were no modifications were made during testing.

APPENDIX C

ADDITIONAL MODELS COVERED UNDER THIS REPORT

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST	Wireless Remote Model: ACC-REMOTE-C7T S/N: None

No additional models were tested.

APPENDIX D

DIAGRAMS, CHARTS, AND PHOTOS

FIGURE 1: PLOT MAP AND LAYOUT OF TEST SITE BELOW 1GHZ

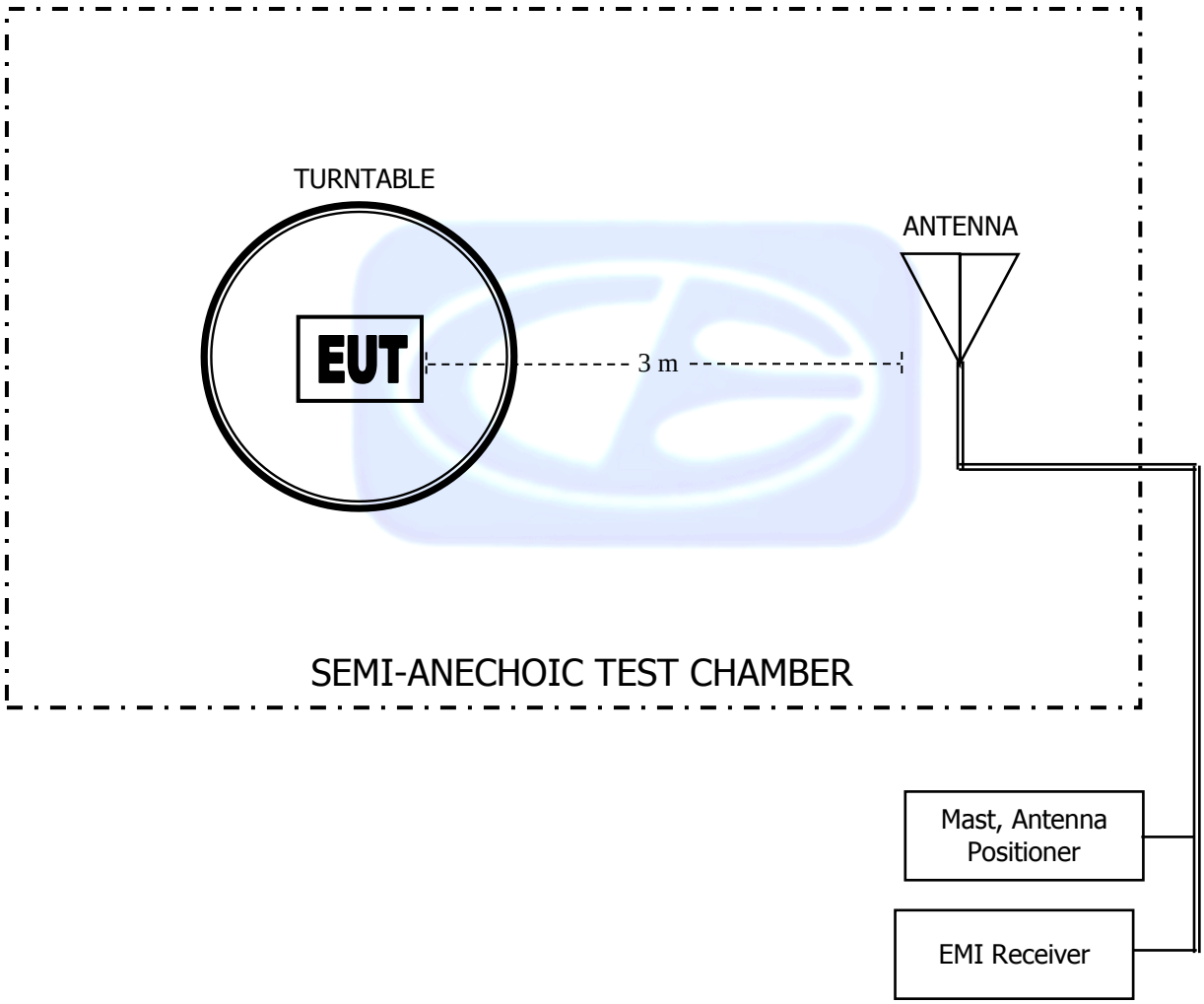
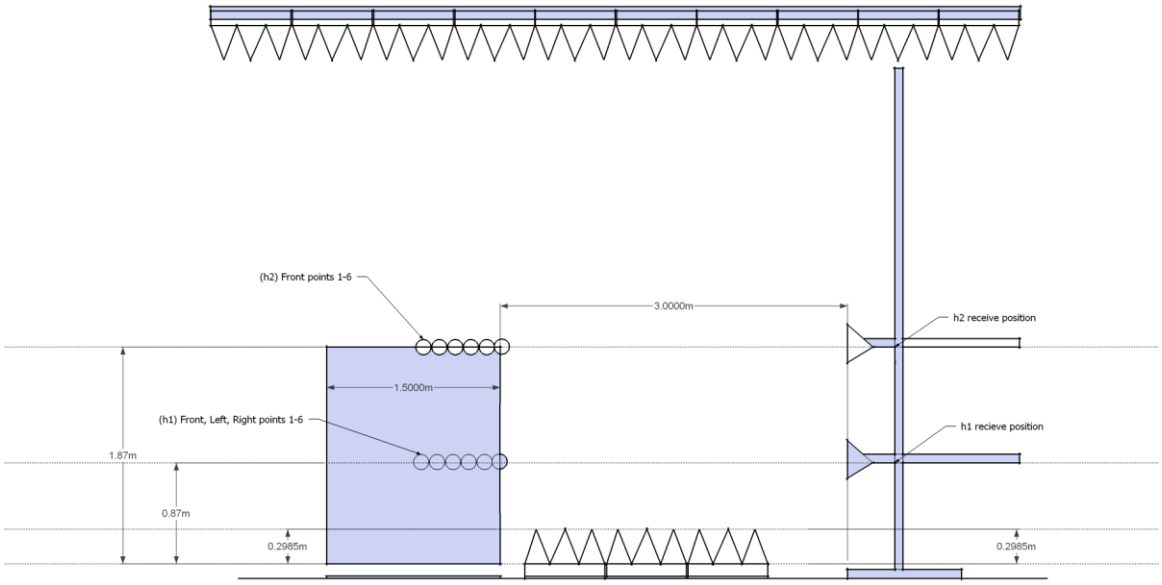


FIGURE 2: PLOT MAP AND LAYOUT OF TEST SITE ABOVE 1GHZ



COM-POWER AL-130

LOOP ANTENNA

S/N: 121049

CALIBRATION DUE: 03/21/2021

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)	FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-35.2	16.3	**7.0**	-36.9	14.6
0.01	-35.7	15.7	**8.0**	-36.8	14.6
0.02	-36.6	14.8	**9.0**	-36.9	14.6
0.03	-35.8	15.6	**10.0**	-36.6	14.9
0.04	-36.4	15.1	**11.0**	-36.5	14.9
0.05	-37.0	14.5	**12.0**	-36.5	14.9
0.06	-36.8	14.7	**13.0**	-36.7	14.8
0.07	-37.0	14.4	**14.0**	-36.8	14.7
0.08	-37.1	14.4	**15.0**	-36.9	14.6
0.09	-36.9	14.5	**16.0**	-36.9	14.6
0.1	-37.3	14.1	**17.0**	-36.8	14.6
0.2	-37.3	14.1	**18.0**	-36.7	14.8
0.3	-37.4	14.0	**19.0**	-36.5	14.9
0.4	-37.4	14.0	**20.0**	-36.5	14.9
0.5	-37.2	14.2	**21.0**	-36.8	14.7
0.6	-37.2	14.2	**22.0**	-37.2	14.3
0.7	-37.2	14.2	**23.0**	-37.6	13.8
0.8	-37.2	14.2	**24.0**	-38.1	13.4
0.9	-37.2	14.3	**25.0**	-38.4	13.1
1.0	-36.9	14.5	**26.0**	-38.5	13.0
2.0	-36.9	14.6	**27.0**	-38.4	13.1
3.0	-36.9	14.6	**28.0**	-38.3	13.2
4.0	-36.8	14.7	**29.0**	-38.3	13.2
5.0	-36.8	14.6	**30.0**	-38.4	13.0
6.0	-36.9	14.6			

COM-POWER AC-220

COMBILOG ANTENNA

S/N: 061105

CALIBRATION DUE: MARCH 12, 2020

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	24.05	**160**	13.57
35	22.46	**180**	14.07
40	19.36	**200**	14.72
45	17.42	**250**	18.27
50	15.77	**300**	20.95
60	12.86	**400**	23.16
70	11.22	**500**	21.86
80	11.84	**600**	23.54
90	13.48	**700**	23.85
100	14.80	**800**	25.91
120	16.38	**900**	26.71
140	14.41	**1000**	27.60

COM-POWER AH-118A

HORN ANTENNA

S/N: 10050054

CALIBRATION DUE: JANUARY 25, 2021

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
700	25.81	**7500**	37.52
750	25.59	**8000**	37.91
800	25.05	**8500**	37.60
850	24.60	**9000**	37.91
900	24.14	**9500**	38.75
950	23.69	**10000**	38.85
1000	23.85	**10500**	38.84
1250	24.86	**11000**	39.05
1500	25.34	**11500**	39.60
1750	25.30	**12000**	39.87
2000	28.02	**12500**	40.16
2250	28.14	**13000**	40.17
2500	28.87	**13500**	40.59
3000	30.01	**14000**	40.63
3500	30.70	**14500**	40.55
4000	31.64	**15000**	42.53
4500	32.85	**15500**	40.85
5000	34.25	**16000**	41.28
5500	34.61	**16500**	41.35
6000	35.02	**17000**	41.43
6500	35.43	**17500**	42.50
7000	36.68	**18000**	43.51

COM-POWER AH-826

HORN ANTENNA

S/N: 081078

CALIBRATION DUE: JULY 22, 2021

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.00	32.83	**21.25**	33.71
18.10	32.74	**21.50**	33.58
18.20	32.68	**21.75**	33.70
18.30	32.67	**22.00**	33.88
18.40	32.73	**22.25**	33.88
18.50	32.83	**22.50**	34.00
18.60	32.90	**22.75**	33.91
18.70	32.95	**23.00**	33.93
18.80	33.00	**23.25**	34.07
18.90	33.06	**23.50**	34.17
19.00	33.08	**23.75**	34.36
19.10	33.12	**24.00**	34.35
19.20	33.17	**24.25**	34.29
19.30	33.18	**24.50**	34.34
19.40	33.15	**24.75**	34.40
19.50	33.10	**25.00**	34.58
19.75	33.07	**25.25**	34.65
20.00	33.21	**25.50**	34.60
20.25	33.31	**25.75**	34.61
20.50	33.64	**26.00**	34.64
20.75	33.65	**26.25**	34.74
21.00	33.58	**26.50**	35.08

COM-POWER PAM-118A

1-18GHz - PREAMPLIFIER

S/N# 551034

CALIBRATION DUE: JANUARY 28, 2020

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
500	39.68	**6000**	41.31
600	39.94	**6500**	41.35
700	39.99	**7000**	41.61
800	40.24	**7500**	41.72
900	39.93	**8000**	41.73
1000	40.44	**8500**	40.82
1250	40.63	**9000**	40.78
1500	40.80	**9500**	42.10
1750	41.00	**10000**	42.62
2000	41.35	**10500**	41.43
2250	41.60	**11000**	41.00
2500	41.82	**11500**	41.26
2750	42.08	**12000**	41.50
3000	42.33	**12500**	41.01
3250	42.50	**13000**	40.50
3500	42.59	**13500**	40.28
3750	42.64	**14000**	40.32
4000	42.60	**14500**	40.55
4250	42.42	**15000**	40.62
4500	42.20	**15500**	40.74
4750	42.04	**16000**	40.69
5000	41.88	**16500**	40.98
5250	41.69	**17000**	40.16
5500	41.59	**17500**	39.29
5750	41.44	**18000**	39.52

COM-POWER PA-840

18-40 GHz PREAMPLIFIER

S/N: 181289

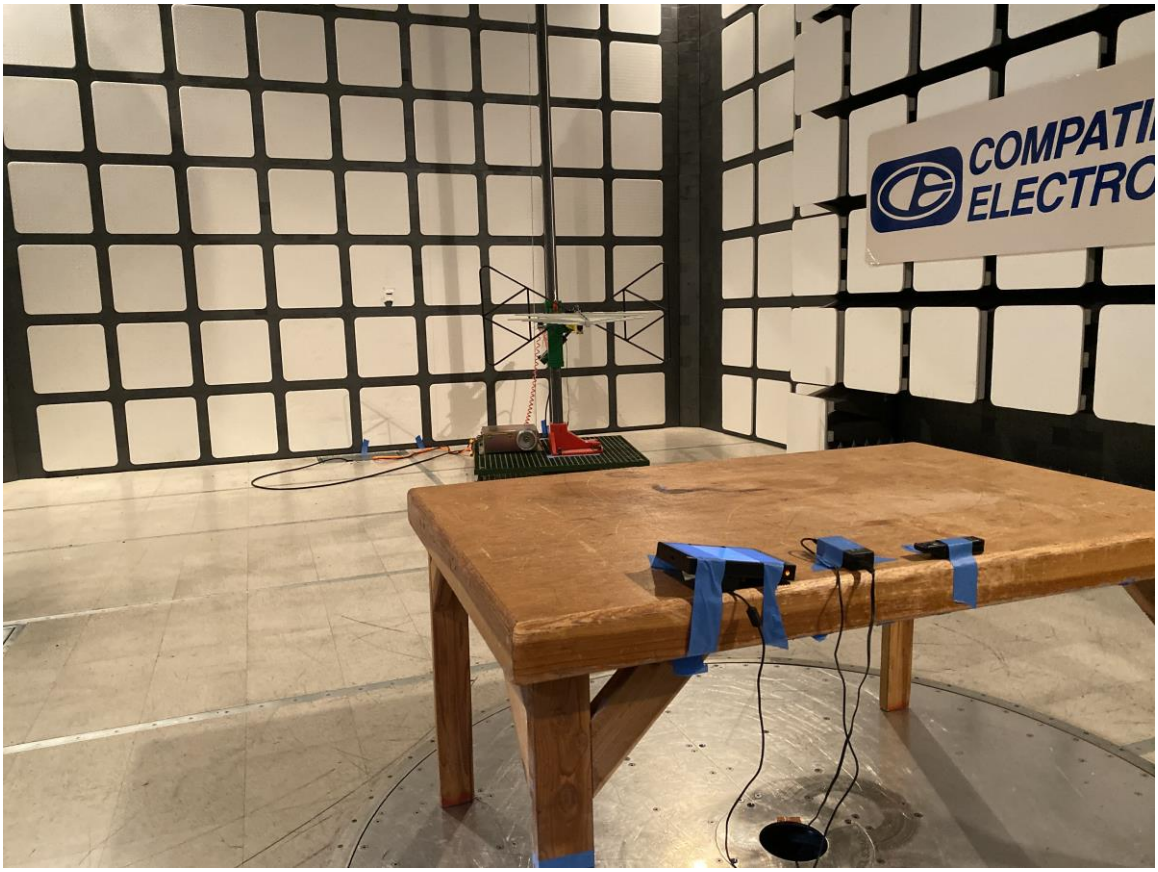
CALIBRATION DUE: JULY 23,2020

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
18.00	33.29	**29.50**	31.82
18.50	28.81	**30.00**	31.25
19.00	26.91	**30.50**	30.24
19.50	29.21	**31.00**	29.51
20.00	30.70	**31.50**	30.09
20.50	31.88	**32.00**	31.10
21.00	32.88	**32.50**	31.40
21.50	33.13	**33.00**	31.28
22.00	32.55	**33.50**	30.97
22.50	31.67	**34.00**	30.80
23.00	31.04	**34.50**	30.63
23.50	30.84	**35.00**	30.22
24.00	30.97	**35.50**	29.87
24.50	31.33	**36.00**	29.88
25.00	31.86	**36.50**	29.98
25.50	32.53	**37.00**	30.06
26.00	33.21	**37.50**	30.08
26.50	33.68	**38.00**	30.33
27.00	33.88	**38.50**	31.29
27.50	33.75	**39.00**	32.78
28.00	33.36	**39.50**	33.67
28.50	32.87	**40.00**	33.27
29.00	32.29		

FRONT VIEW

SMALL HD
Wireless Remote
Model: ACC-REMOTE-C7T
FCC SUBPART C - RADIATED EMISSIONS < 1GHz

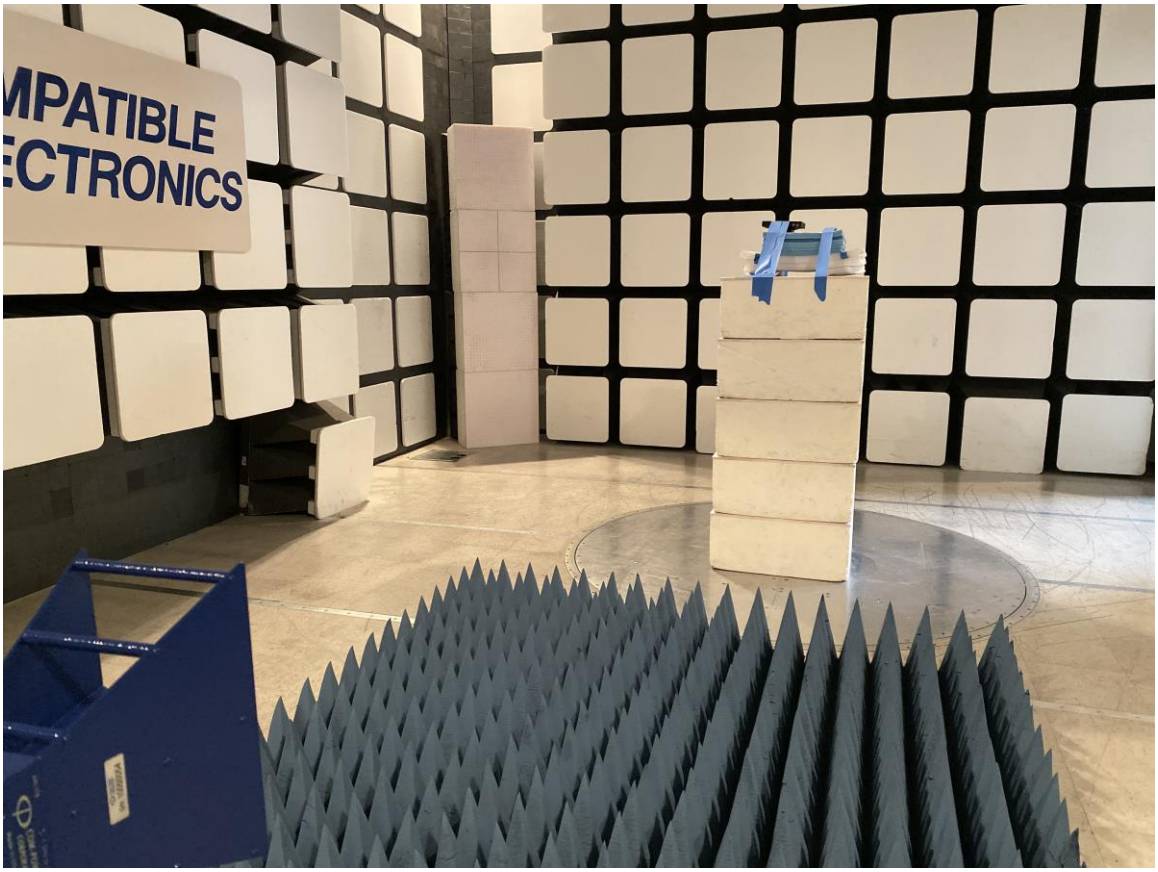
PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

SMALL HD
Wireless Remote
Model: ACC-REMOTE-C7T
FCC SUBPART C - RADIATED EMISSIONS < 1GHz

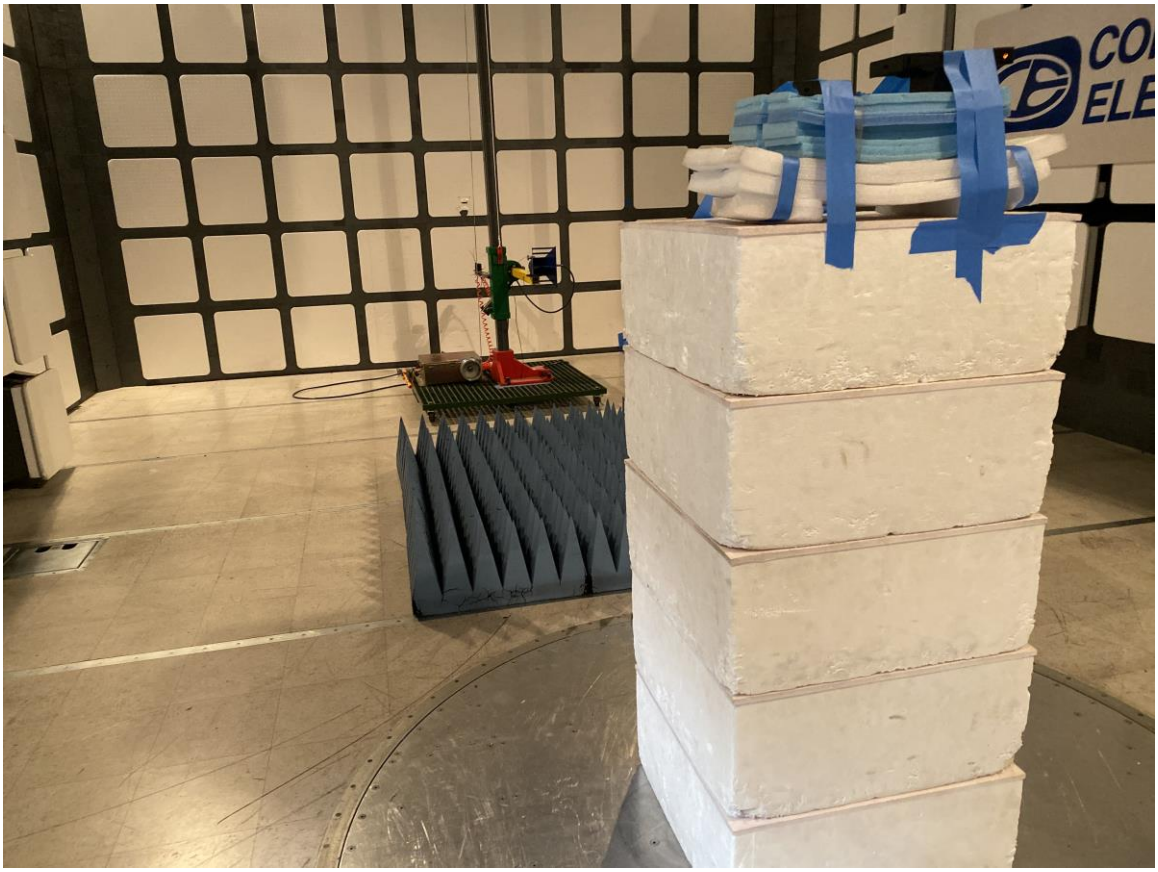
PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



FRONT VIEW

SMALL HD
Wireless Remote
Model: ACC-REMOTE-C7T
FCC SUBPART C - RADIATED EMISSIONS > 1GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

SMALL HD
Wireless Remote
Model: ACC-REMOTE-C7T
FCC SUBPART C - RADIATED EMISSIONS > 1GHz

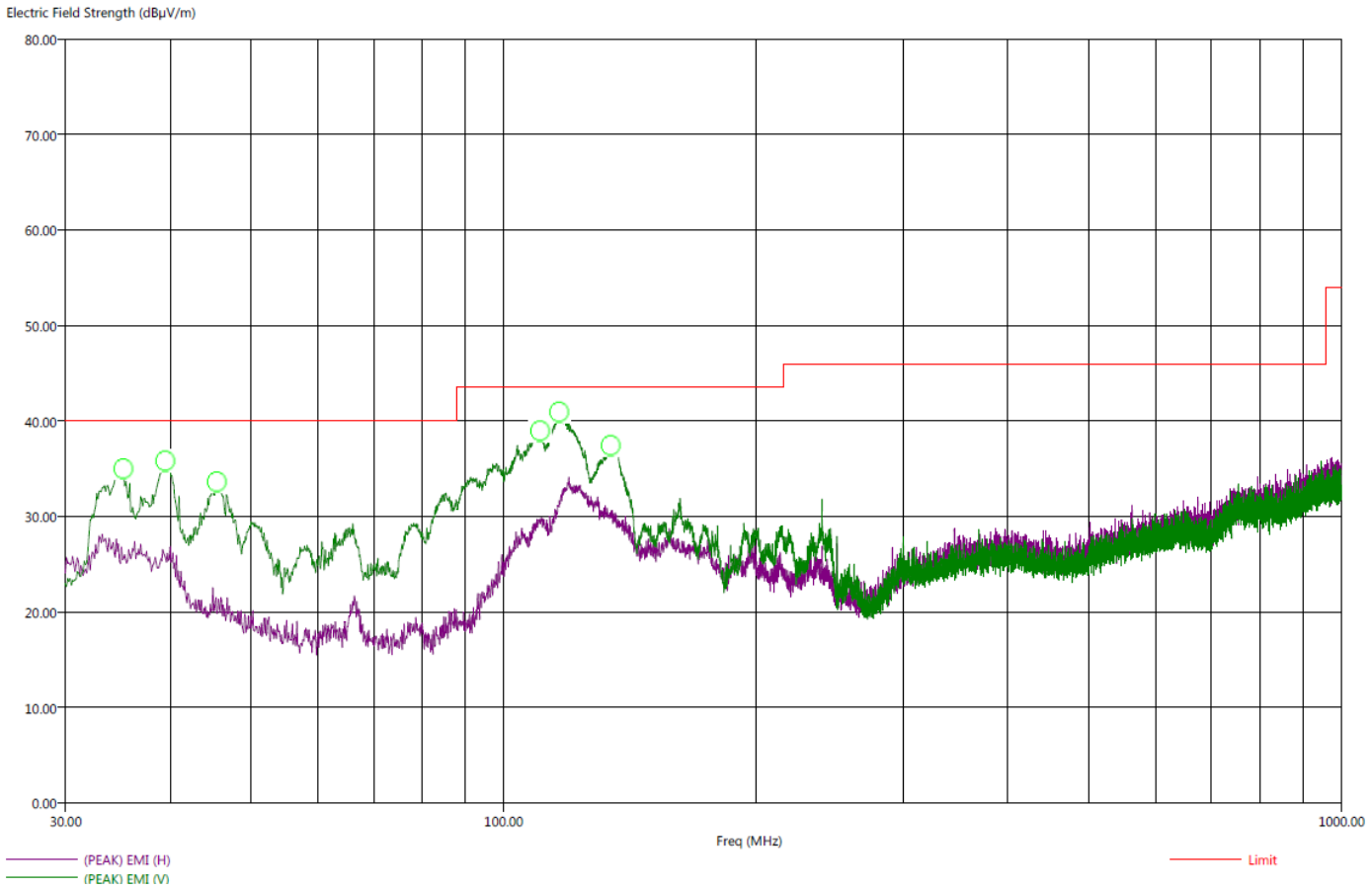
PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

APPENDIX E

RADIATED EMISSIONS DATA SHEETS

Title: FCC 15.209 Class B 11/8/2019 8:14:44 AM
File: Radiated Pre-Scan 30-1000Mhz.set Sequence: Preliminary Scan
Operator: Howard Huang
EUT Type: Wireless Remote/ACC-REMOTE-C7T
EUT Condition: The EUT is in sync with monitor
Comments: Company: SmallHD
FCC ID:2AELXC7RMT
Temp: 75f
Hum: 38%
Battery Powered
Z-Axis

Compatible Electronics, Inc. FAC-3 (LAB P)



There were no radiated emissions found below 30 MHz. This is worst case axis.

Title: FCC 15.209 Class B
File: Radiated Final 30-1000Mhz.set
Operator: Howard Huang
EUT Type: Wireless Remote/ACC-REMOTE-C7T
EUT Condition: The EUT is in sync with monitor
Comments:
Company: SmallHD
FCC ID:2AELXC7RMT
Temp: 75f
Hum: 38%
Battery Powered

1/8/2019 8:38:15 AM
Sequence: Final Measurements

Compatible Electronics, Inc. FAC-3 (LAB P)

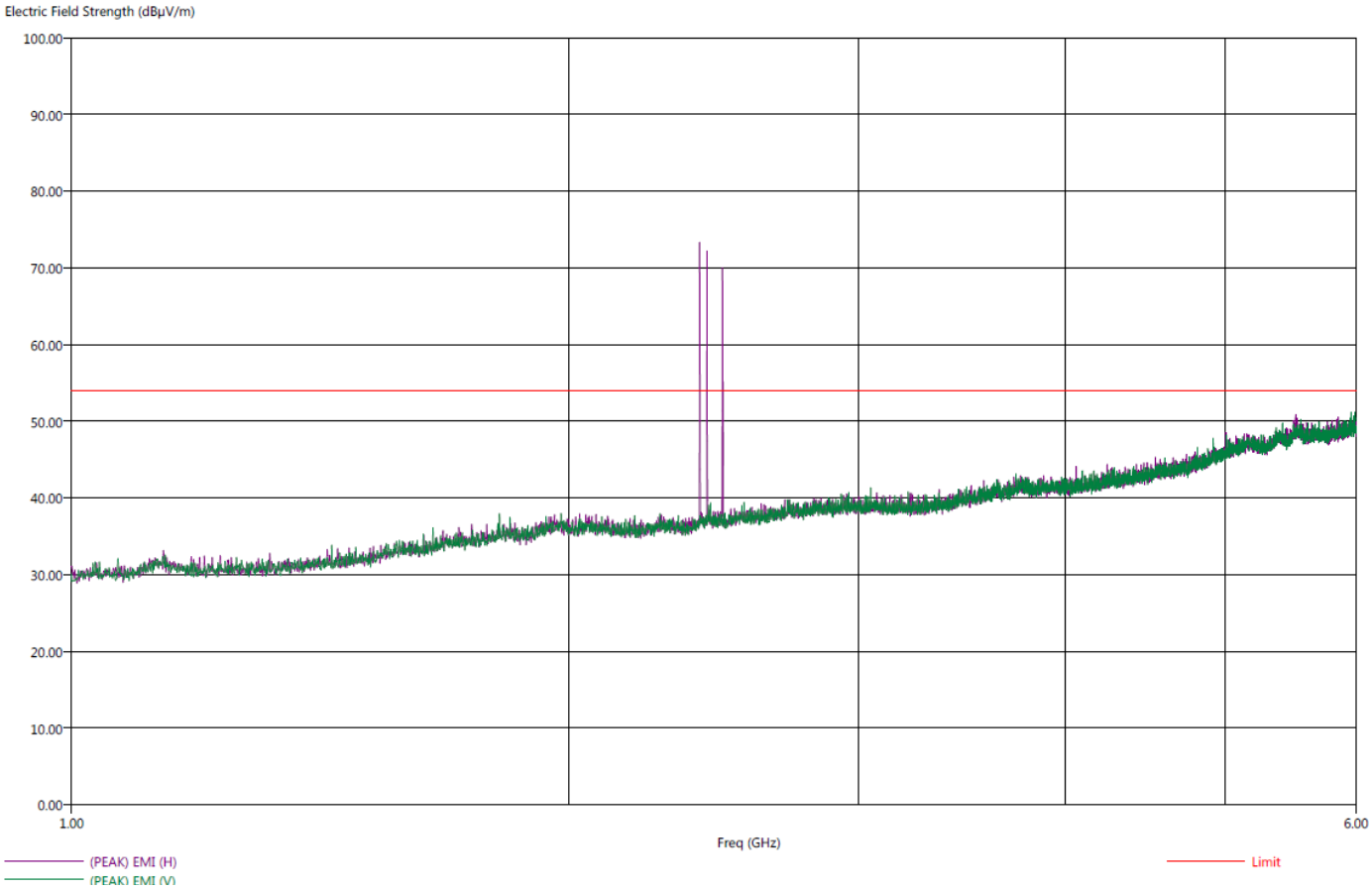
Freq (MHz)	(QP) Margin (dB)	(QP) EMI (dBµV/m)	(PEAK) EMI (dBµV/m)	Limit (dBµV/m)	Pol	Ttbl Agl (deg)	Twr Ht (cm)	Transducer (dB)	Cable (dB)
35.20	-6.96	33.04	35.86	40.00	V	307.75	100.00	22.29	0.46
39.50	-2.48	37.52	39.73	40.00	V	128.50	100.11	19.65	0.48
45.50	-1.64	38.36	40.48	40.00	V	-0.25	109.58	17.23	0.54
110.60	-5.92	37.60	39.98	43.52	V	144.75	104.52	15.68	0.88
116.60	-9.13	34.39	36.70	43.52	V	140.75	109.82	16.12	0.90
134.30	-11.71	31.81	33.82	43.52	V	308.50	105.11	14.93	0.97

There were no radiated emissions below 30 MHz. This is worst case axis.

Title: FCC 15.209 Class B
File: Radiated Pre-scan 1-6GHz.set
Operator: Howard Huang
EUT Type: Wireless Remote/ACC-REMOTE-C7T
EUT Condition: The EUT is in sync with the monitor
Comments:
Company: SmallHD
FCC ID: 2AELXC7RMT
Temp: 75f
Hum: 38%
Battery Powered

11/8/2019 9:42:49 AM
Sequence: Preliminary Scan

Compatible Electronics, Inc. FAC-3 (LAB P)



There were no spurious radiated emissions found other than the transmissions at 2402, 2440, and 2480 MHz above 1 GHz.

FUNDAMENTAL & HARMONICS

DATA SHEETS

FUNDAMENTAL FIELD STRENGTH

FCC 15.249

Company: Small HD, LLC
EUT: WIRELESS REMOTE
Model: ACC-REMOTE-C7T

Date: 11/07/2019
Lab: P
Tested By: Howard Huang

Compatible Electronics, Inc. FAC-3

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin (dB)	Detector	Table (deg)	Tower (m)	Comments
2402.00	83.17	H	93.97	-10.80	Peak	205.75	164.70	Z Axis
2402.00	82.55	V	93.97	-11.42	Peak	335.00	193.76	Z Axis
2440.00	79.91	H	93.97	-14.06	Peak	219.75	152.05	Z Axis
2440.00	80.11	V	93.97	-13.86	Peak	0.00	151.05	Z Axis
2480.00	80.20	H	93.97	-13.77	Peak	302.00	147.47	Z Axis
2480.00	79.88	V	93.97	-14.21	Peak	352.50	215.00	Z Axis

Test distance
3 meter

HARMONICS LOW CHANNEL HORIZONTAL

FCC 15.249

Company: Small HD, LLC
EUT: WIRELESS REMOTE
Model: ACC-REMOTE-C7T

Date: 11/7/2019
Lab: P
Tested By: Howard Huang

Freq. (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Peak /Avg	Ant. Height (m)	Table Angle (deg)	Comments
4804.0	52.14	73.98	-21.84	Peak	100.00	158	X-Axis
4804.0	34.00	53.98	-19.98	Avg	100.00	158	X-Axis
4804.0	54.99	73.98	-18.99	Peak	209.11	304	Z-Axis
4804.0	35.57	53.98	-18.41	Avg	209.11	304	Z-Axis
4804.0	48.11	73.98	-25.87	Peak	259.58	79	Y-Axis
4804.0	33.00	53.98	-20.98	Avg	259.58	79	Y-Axis
7206.0	42.07	73.98	-31.91	Peak	124.64	161	X-Axis
7206.0	28.00	53.98	-25.98	Avg	124.64	161	X-Axis
7206.0	47.78	73.98	-26.20	Peak	59.50	228	Z-Axis
7206.0	31.09	53.98	-22.89	Avg	59.50	228	Z-Axis
7206.0	43.90	73.98	-30.08	Peak	255.47	286	Y-Axis
7206.0	32.00	53.98	-21.98	Avg	255.47	286	Y-Axis
9608.0		73.98		Peak			No Emissions Found
9608.0		53.98		Avg			No Emissions Found
12010.0		73.98		Peak			No Emissions Found
12010.0		53.98		Avg			No Emissions Found
14412.0		73.98		Peak			No Emissions Found
14412.0		53.98		Avg			No Emissions Found
16814.0		73.98		Peak			No Emissions Found
16814.0		53.98		Avg			No Emissions Found
19216.0		73.98		Peak			No Emissions Found
19216.0		53.98		Avg			No Emissions Found
21618.0		73.98		Peak			No Emissions Found
21618.0		53.98		Avg			No Emissions Found
24020.0		73.98		Peak			No Emissions Found
24020.0		53.98		Avg			No Emissions Found

Test distance
3 meter

HARMONICS LOW CHANNEL VERTICAL

FCC 15.249

Company: Small HD, LLC
EUT: WIRELESS REMOTE
Model: ACC-REMOTE-C7T

Date: 11/7/2019
Lab: P
Tested By: Howard Huang

Freq. (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Peak /Avg	Ant. Height (m)	Table Angle (deg)	Comments
4804.0	49.73	73.98	-24.25	Peak	123.17	28	X-Axis
4804.0	33.50	53.98	-20.48	Avg	123.17	28	X-Axis
4804.0	54.05	73.98	-19.93	Peak	152.88	31	Z-Axis
4804.0	31.63	53.98	-22.35	Avg	152.88	31	Z-Axis
4804.0	50.39	73.98	-23.59	Peak	120.75	6.75	Y-Axis
4804.0	37.00	53.98	-16.98	Avg	120.75	6.75	Y-Axis
7206.0	47.94	73.98	-26.04	Peak	109.23	320	X-Axis
7206.0	31.00	53.98	-22.98	Avg	109.23	320	X-Axis
7206.0	42.64	73.98	-31.34	Peak	167.17	67	Z-Axis
7206.0	27.00	53.98	-26.98	Avg	167.17	67	Z-Axis
7206.0	46.23	73.98	-27.75	Peak	228.35	326.75	Y-Axis
7206.0	32.00	53.98	-21.98	Avg	228.35	326.75	Y-Axis
9608.0		73.98		Peak			No Emissions Found
9608.0		53.98		Avg			No Emissions Found
12010.0		73.98		Peak			No Emissions Found
12010.0		53.98		Avg			No Emissions Found
14412.0		73.98		Peak			No Emissions Found
14412.0		53.98		Avg			No Emissions Found
16814.0		73.98		Peak			No Emissions Found
16814.0		53.98		Avg			No Emissions Found
19216.0		73.98		Peak			No Emissions Found
19216.0		53.98		Avg			No Emissions Found
21618.0		73.98		Peak			No Emissions Found
21618.0		53.98		Avg			No Emissions Found
24020.0		73.98		Peak			No Emissions Found
24020.0		53.98		Avg			No Emissions Found

Test distance
3 meter

HARMONICS MID CHANNEL HORIZONTAL

FCC 15.249

Company: Small HD, LLC
EUT: WIRELESS REMOTE
Model: ACC-REMOTE-C7T

Date: 11/7/2019
Lab: P
Tested By: Howard Huang

Freq. (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4880.0	48.57	73.98	-21.84	Peak	100.00	158	X-Axis
4880.0	32.00	53.98	-19.98	Avg	100.00	158	X-Axis
4880.0	52.12	73.98	-18.99	Peak	209.11	304	Z-Axis
4880.0	35.00	53.98	-18.41	Avg	209.11	304	Z-Axis
4880.0	48.90	73.98	-25.87	Peak	259.58	79	Y-Axis
4880.0	34.00	53.98	-20.98	Avg	259.58	79	Y-Axis
7320.0	39.39	73.98	-31.91	Peak	124.64	161	X-Axis
7320.0	25.00	53.98	-25.98	Avg	124.64	161	X-Axis
7320.0	43.03	73.98	-26.20	Peak	59.50	228	Z-Axis
7320.0	30.00	53.98	-22.89	Avg	59.50	228	Z-Axis
7320.0	40.76	73.98	-30.08	Peak	255.47	286	Y-Axis
7320.0	28.00	53.98	-21.98	Avg	255.47	286	Y-Axis
9760.0		73.98		Peak			No Emissions Found
9760.0		53.98		Avg			No Emissions Found
12200.0		73.98		Peak			No Emissions Found
12200.0		53.98		Avg			No Emissions Found
14640.0		73.98		Peak			No Emissions Found
14640.0		53.98		Avg			No Emissions Found
17080.0		73.98		Peak			No Emissions Found
17080.0		53.98		Avg			No Emissions Found
19520.0		73.98		Peak			No Emissions Found
19520.0		53.98		Avg			No Emissions Found
21960.0		73.98		Peak			No Emissions Found
21960.0		53.98		Avg			No Emissions Found
24400.0		73.98		Peak			No Emissions Found
24400.0		53.98		Avg			No Emissions Found

Test distance
3 meter

HARMONICS MID CHANNEL VERTICAL

FCC 15.249

Company: Small HD, LLC
EUT: WIRELESS REMOTE
Model: ACC-REMOTE-C7T

Date: 11/7/2019
Lab: P
Tested By: Howard Huang

Freq. (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4880.0	49.29	73.98	-24.69	Peak	138.94	30.25	X-Axis
4880.0	31.50	53.98	-22.48	Avg	138.94	30.25	X-Axis
4880.0	49.64	73.98	-24.34	Peak	149.64	40	Z-Axis
4880.0	30.57	53.98	-23.41	Avg	150.47	40	Z-Axis
4880.0	48.88	73.98	-25.10	Peak	158.11	5	Y-Axis
4880.0	32.00	53.98	-21.98	Avg	158.11	5	Y-Axis
7320.0	43.51	73.98	-30.47	Peak	135.88	5.75	X-Axis
7320.0	29.50	53.98	-24.48	Avg	135.88	5.75	X-Axis
7320.0	38.25	73.98	-35.73	Peak	179.64	50.25	Z-Axis
7320.0	25.00	53.98	-28.98	Avg	179.64	50.25	Z-Axis
7320.0	42.67	73.98	-31.31	Peak	248.35	327	Y-Axis
7320.0	29.00	53.98	-24.98	Avg	248.35	327	Y-Axis
9760.0		73.98		Peak			No Emissions Found
9760.0		53.98		Avg			No Emissions Found
12200.0		73.98		Peak			No Emissions Found
12200.0		53.98		Avg			No Emissions Found
14640.0		73.98		Peak			No Emissions Found
14640.0		53.98		Avg			No Emissions Found
17080.0		73.98		Peak			No Emissions Found
17080.0		53.98		Avg			No Emissions Found
19520.0		73.98		Peak			No Emissions Found
19520.0		53.98		Avg			No Emissions Found
21960.0		73.98		Peak			No Emissions Found
21960.0		53.98		Avg			No Emissions Found
24400.0		73.98		Peak			No Emissions Found
24400.0		53.98		Avg			No Emissions Found

Test distance
3 meter

HARMONICS HIGH CHANNEL HORIZONTAL

FCC 15.249

Company: Small HD
EUT: WIRELESS REMOTE
Model: ACC-REMOTE-C7T

Date: 11/7/2019
Lab: P
Tested By: Howard Huang

Freq. (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4960.0	46.82	73.98	-27.16	Peak	151.52	219.75	X-Axis
4960.0	31.00	53.98	-21.98	Avg	151.52	219.75	X-Axis
4960.0	47.02	73.98	-26.96	Peak	164.00	9.25	Z-Axis
4960.0	31.56	53.98	-22.42	Avg	164.00	9.25	Z-Axis
4960.0	45.63	73.98	-28.35	Peak	247.94	50	Y-Axis
4960.0	32.00	53.98	-21.98	Avg	247.94	50	Y-Axis
7440.0		73.98		Peak			No Emissions Found
7440.0		53.98		Avg			No Emissions Found
9920.0		73.98		Peak			No Emissions Found
9920.0		53.98		Avg			No Emissions Found
12400.0		73.98		Peak			No Emissions Found
12400.0		53.98		Avg			No Emissions Found
14880.0		73.98		Peak			No Emissions Found
14880.0		53.98		Avg			No Emissions Found
17360.0		73.98		Peak			No Emissions Found
17360.0		53.98		Avg			No Emissions Found
19840.0		73.98		Peak			No Emissions Found
19840.0		53.98		Avg			No Emissions Found
22320.0		73.98		Peak			No Emissions Found
22320.0		53.98		Avg			No Emissions Found
24800.0		73.98		Peak			No Emissions Found
24800.0		53.98		Avg			No Emissions Found

Test distance
3 meter

HARMONICS HIGH CHANNEL VERTICAL

FCC 15.249

Company: Small HD, LLC
EUT: WIRELESS REMOTE
Model: ACC-REMOTE-C7T

Date: 11/7/2019
Lab: P
Tested By: Howard Huang

Freq. (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4960.0	46.61	73.98	-27.37	Peak	139.94	50	X-Axis
4960.0	34.00	53.98	-19.98	Avg	139.94	50	X-Axis
4960.0	47.68	73.98	-26.30	Peak	191.70	45.25	Z-Axis
4960.0	29.65	53.98	-24.33	Avg	149.05	51.25	Z-Axis
4960.0	47.44	73.98	-26.54	Peak	155.52	0	Y-Axis
4960.0	32.00	53.98	-21.98	Avg	155.52	0	Y-Axis
7440.0		73.98		Peak			No Emissions Found
7440.0		53.98		Avg			No Emissions Found
9920.0		73.98		Peak			No Emissions Found
9920.0		53.98		Avg			No Emissions Found
12400.0		73.98		Peak			No Emissions Found
12400.0		53.98		Avg			No Emissions Found
14880.0		73.98		Peak			No Emissions Found
14880.0		53.98		Avg			No Emissions Found
17360.0		73.98		Peak			No Emissions Found
17360.0		53.98		Avg			No Emissions Found
19840.0		73.98		Peak			No Emissions Found
19840.0		53.98		Avg			No Emissions Found
22320.0		73.98		Peak			No Emissions Found
22320.0		53.98		Avg			No Emissions Found
24800.0		73.98		Peak			No Emissions Found
24800.0		53.98		Avg			No Emissions Found

Test distance
3 meter

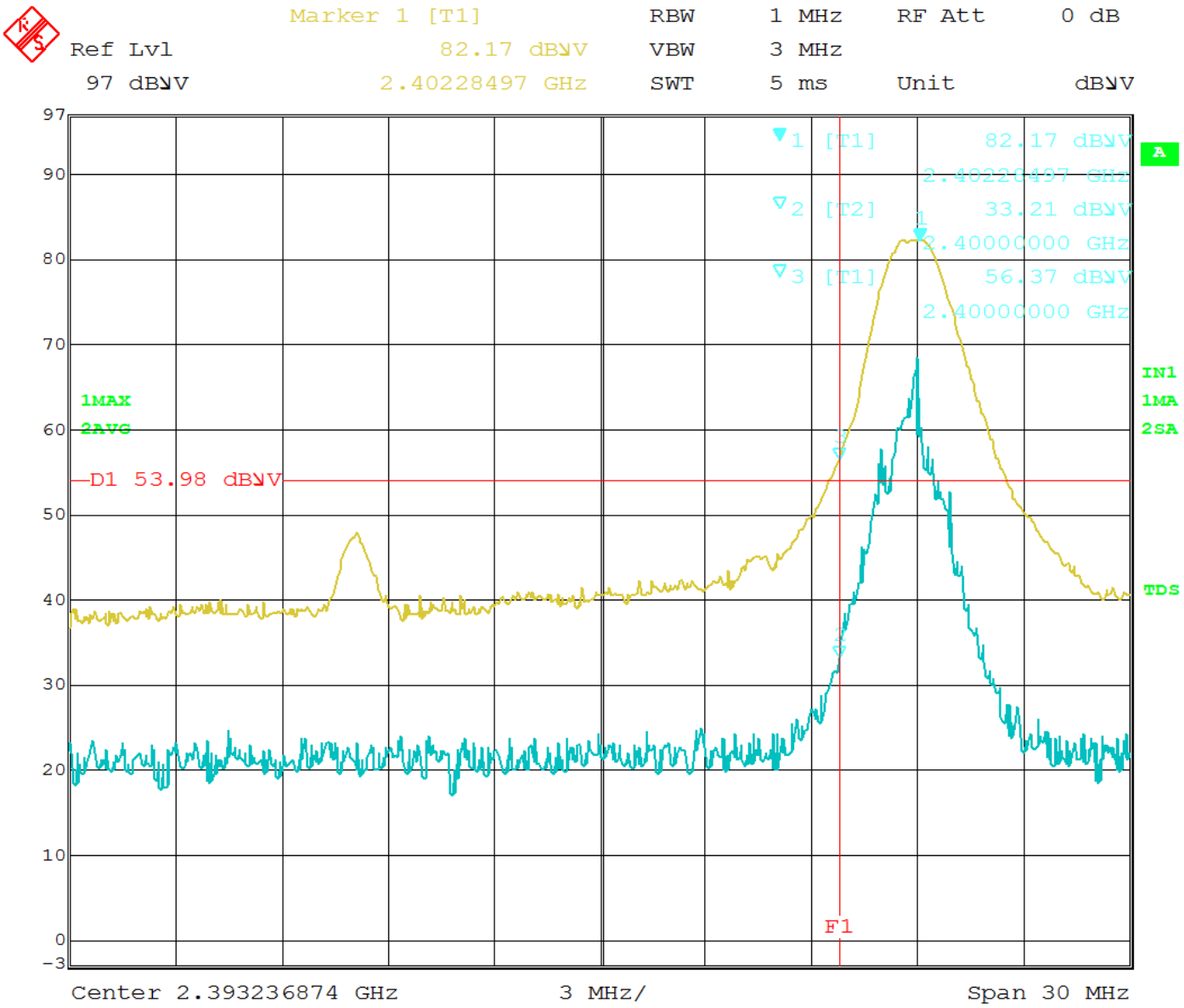
EMISSIONS RADIATED OUTSIDE OF THE FUNDAMENTAL FREQUENCY BAND

DATA SHEETS

LOWER BAND EDGE
(Horizontal)

FCC 15.249

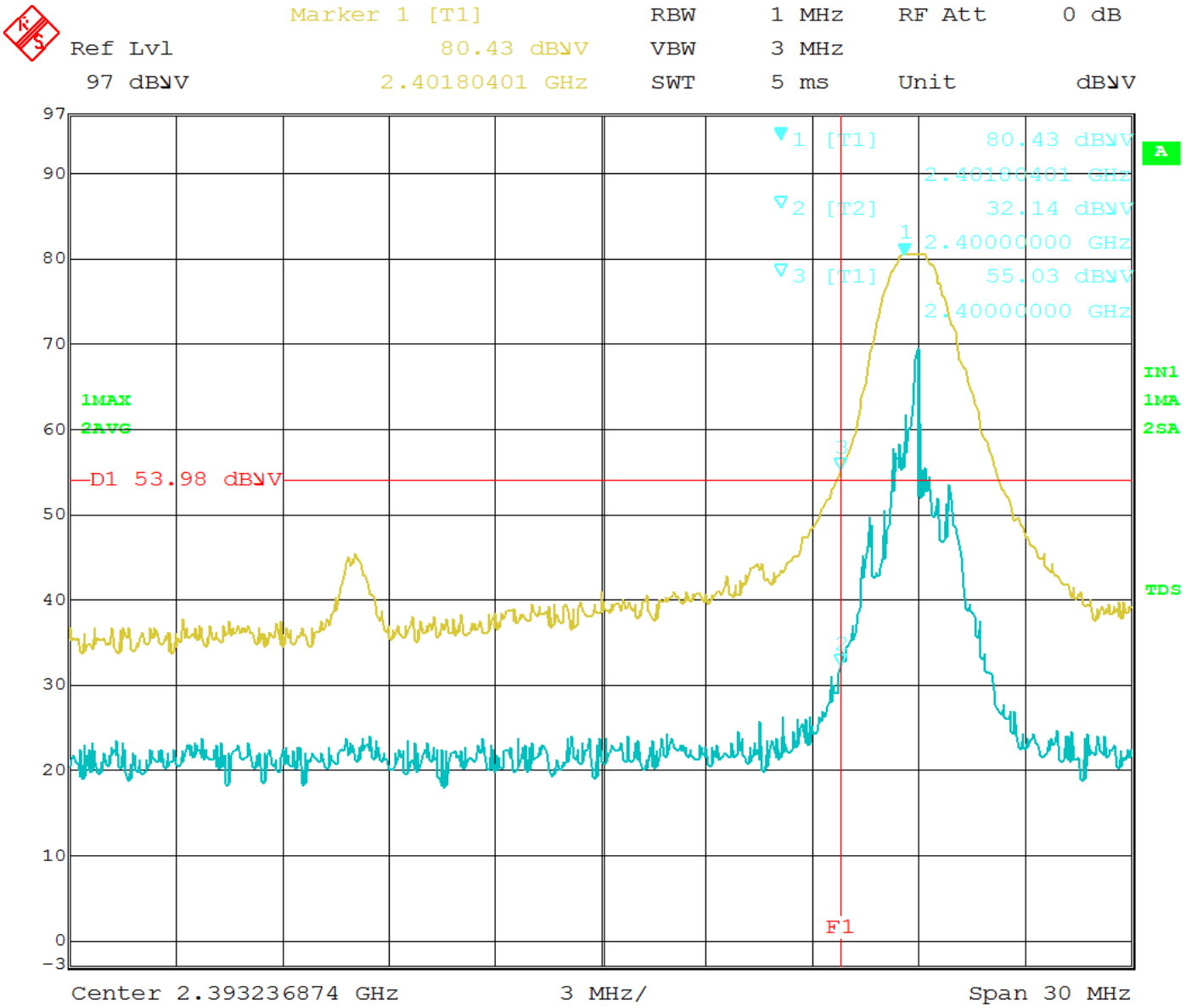
Company:	Small HD, LLC	Date:	11/08/2019
EUT:	WIRELESS REMOTE	Lab:	P
Model:	ACC-REMOTE-C7T	Test ENG:	Howard Huang



LOWER BAND EDGE
(Vertical)

FCC 15.249

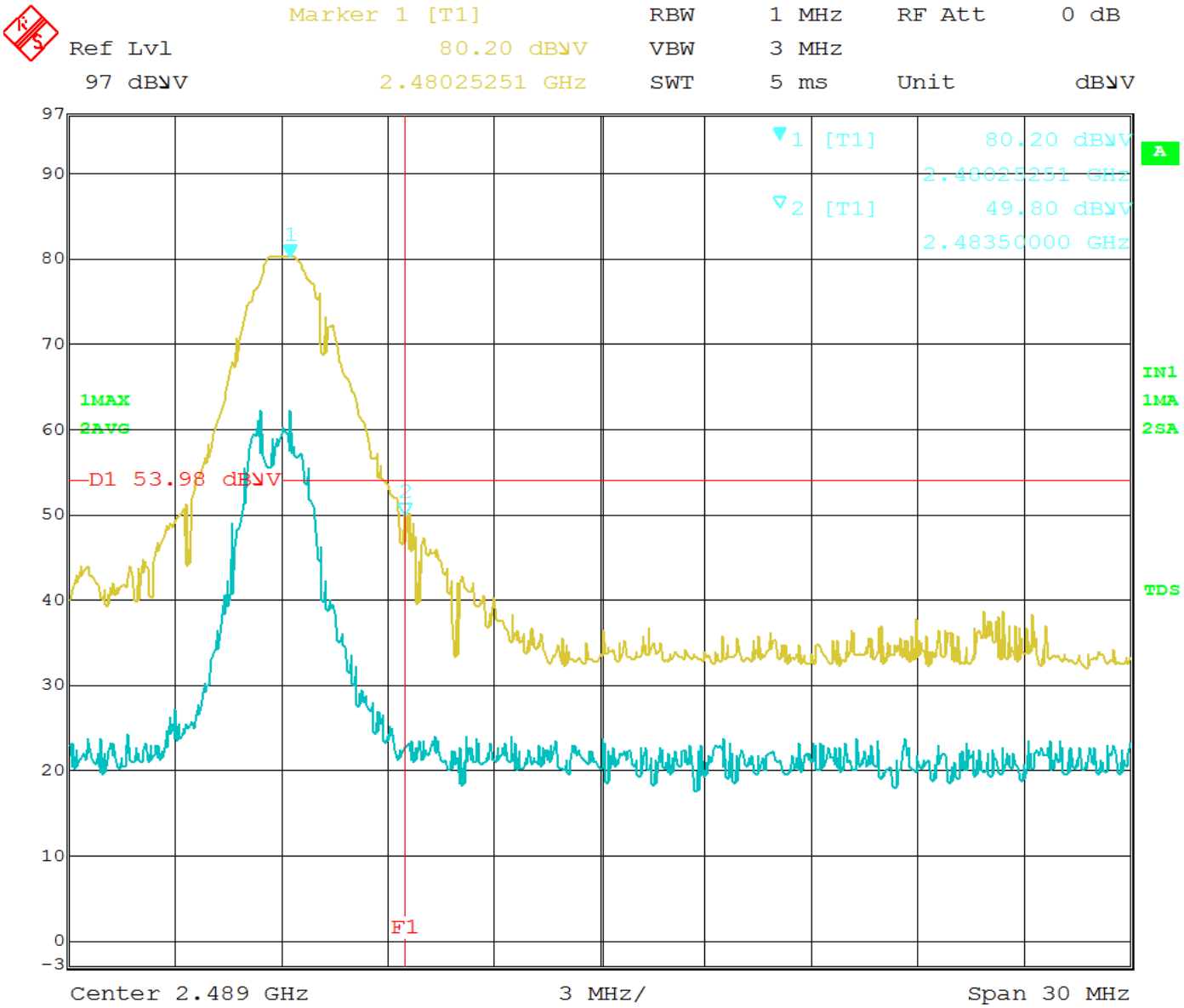
Company:	Small HD, LLC	Date:	11/08/2019
EUT:	WIRELESS REMOTE	Lab:	P
Model:	ACC-REMOTE-C7T	Test ENG:	Howard Huang



UPPER BAND EDGE
(Horizontal)

FCC 15.249

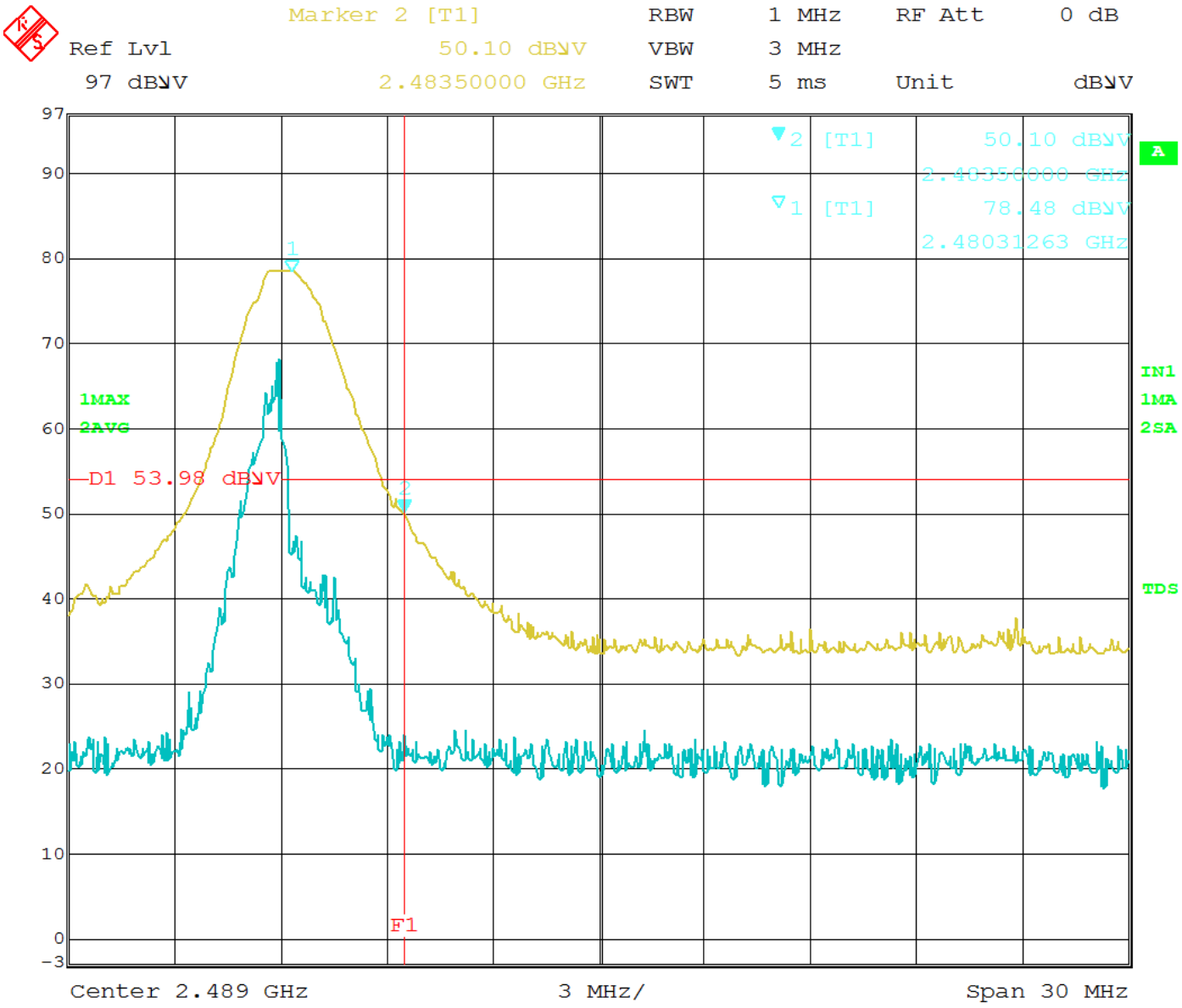
Company:	Small HD, LLC	Date:	11/08/2019
EUT:	WIRELESS REMOTE	Lab:	P
Model:	ACC-REMOTE-C7T	Test ENG:	Howard Huang



UPPER BAND EDGE
(Vertical)

FCC 15.249

Company:	Small HD, LLC	Date:	11/08/2019
EUT:	WIRELESS REMOTE	Lab:	P
Model:	ACC-REMOTE-C7T	Test ENG:	Howard Huang



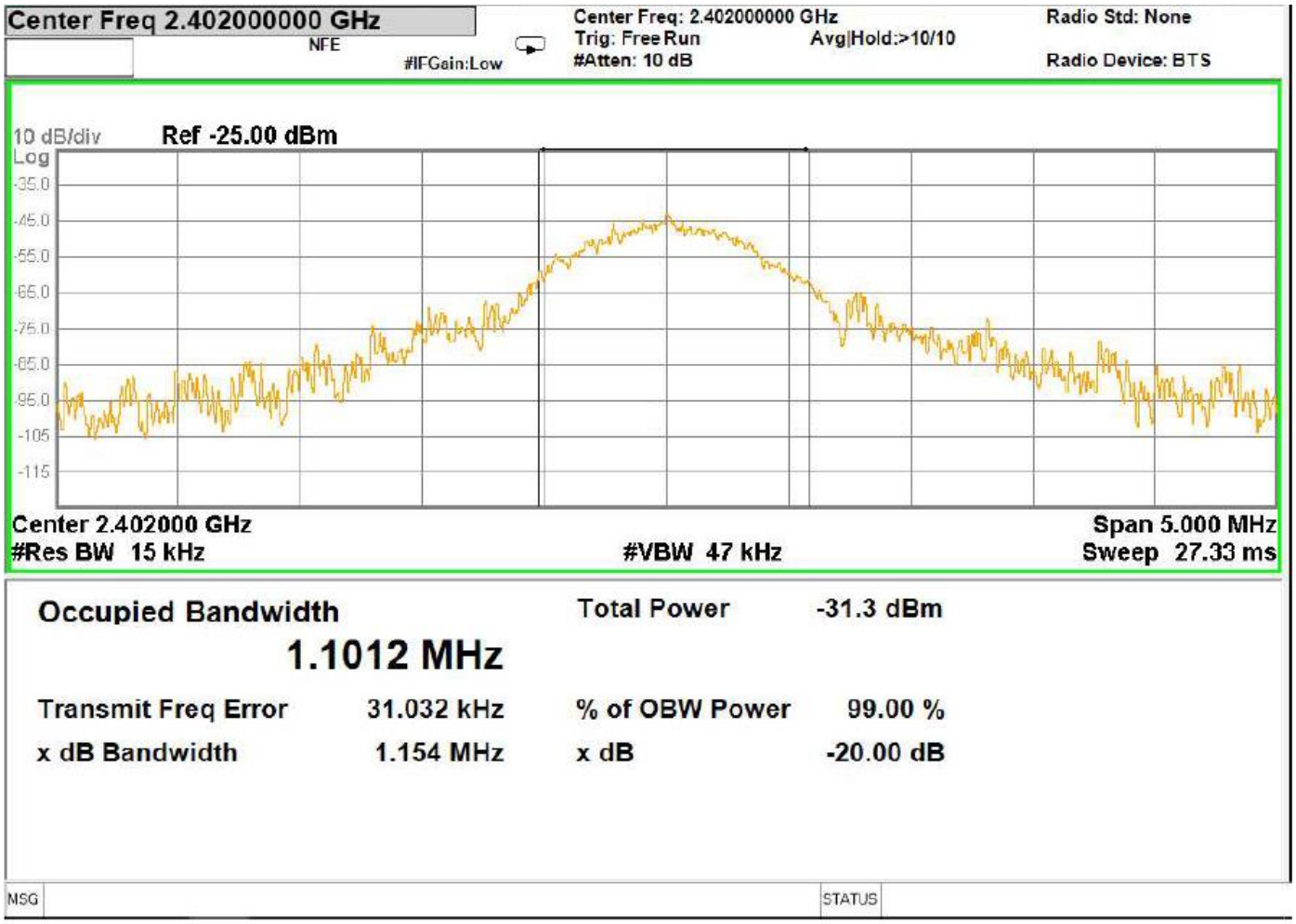
99% OCCUPIED BANDWIDTH

DATA SHEETS

OCCUPIED BANDWIDTH-LOW CHANNEL

RSS-GEN & RSS210

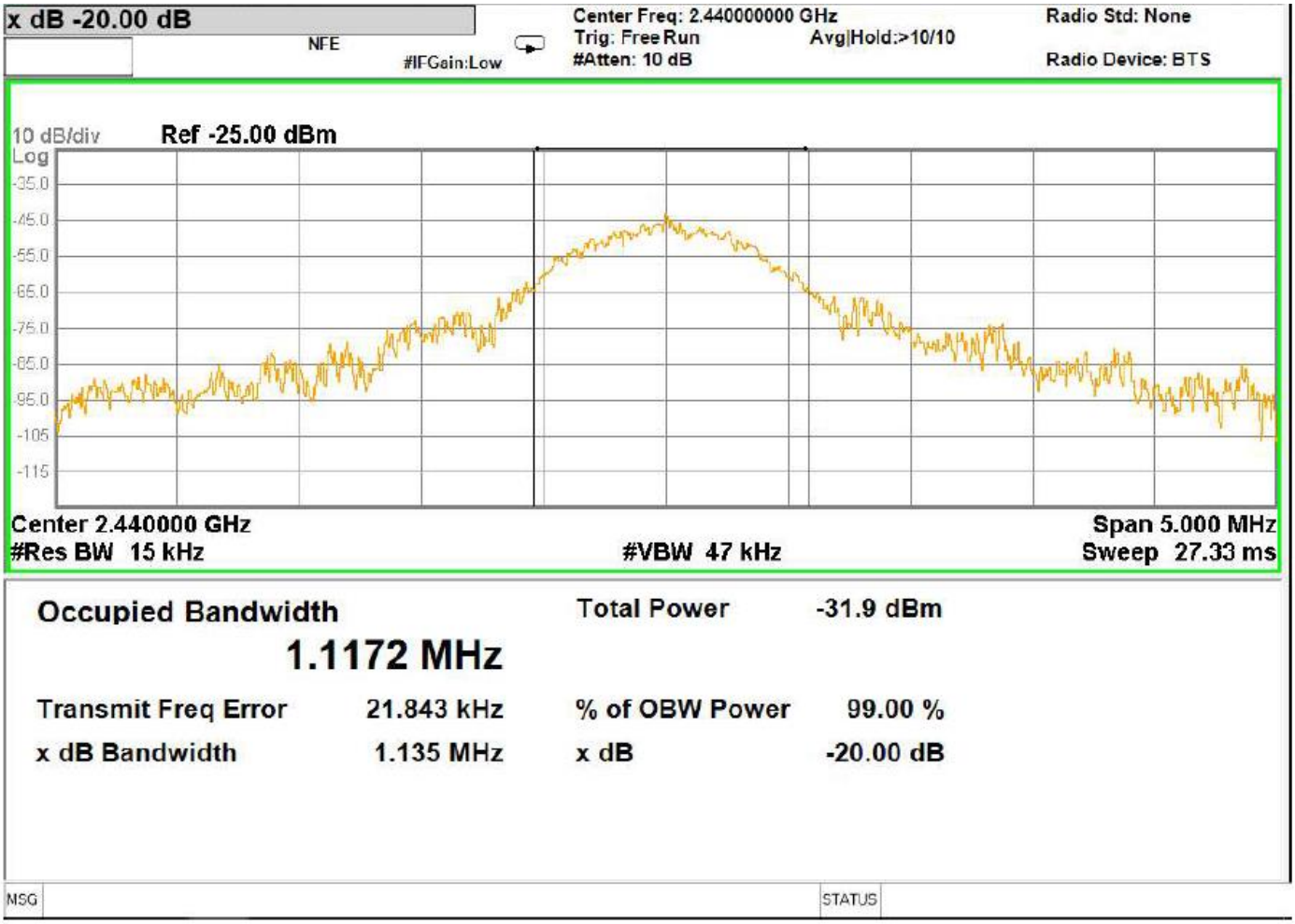
Company:	Small HD, LLC	Date:	11/08/2019
EUT:	WIRELESS REMOTE	Lab:	P
Model:	ACC-REMOTE-C7T	Tested By:	Howard Huang



OCCUPIED BANDWIDTH-MID CHANNEL

RSS-GEN & RSS210

Company:	Small HD, LLC	Date:	11/08/2019
EUT:	WIRELESS REMOTE	Lab:	P
Model:	ACC-REMOTE-C7T	Tested By:	Howard Huang



OCCUPIED BANDWIDTH-HIGH CHANNEL

RSS-GEN & RSS210

Company:	Small HD, LLC	Date:	11/08/2019
EUT:	WIRELESS REMOTE	Lab:	P
Model:	ACC-REMOTE-C7T	Tested By:	Howard Huang