FCC PART 15, SUBPART B and C; FCC 15.247; RSS-247, RSS GEN
TEST REPORT

for

COMCAST XH KEYPAD ZB3.0 2020

Part Number: H34450BA00-00007

Prepared for

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DATE: AUGUST 1, 2020

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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 without the written permission of Compatible Electronics, unless done so in full.

The client must not use this report to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the U.S. government.

Device Tested:	Comcast XH Keypad ZB3.0 2020 Part Number: H34450BA00-00007 S/N: N/A
Product Description:	The Comcast XH Keypad ZB3.0 2020 (EUT) is a wall mounted custom universal remote control with ZigBee 802.15.4 and infrared (IR) support.
Modifications:	The EUT was not modified to meet the specifications.
Customer:	Universal Electronics, Inc. 201 East Sandpointe Avenue, 8th Floor Santa Ana, California 92707
Test Dates:	May 6, 7, 8, and 12, 2020; and August 1, 2020

Test Specifications covered by accreditation:

Test Specifications:	Emissions requirements CFR Title 47, Part 15, Subpart B; and Subpart C, Sections 15.205, 15.209, and 15.247; RSS-247 Issue 10 (2019), and RSS-Gen Issue 5 (2018)

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Test Procedures:	ANSI C63.4: 2014 and ANSI C63.10: 2013
Test Deviations:	The test procedure was not deviated from during the testing.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz – 30 MHz	This test was not performed because the EUT operates on battery power only and does not connect to the AC public mains.
2	Spurious Radiated RF Emissions, 30 MHz – 1000 MHz	The EUT complies with the **Class B** limits of CFR Title 47, Part 15 Subpart B; the limits of CFR Title 47, Part 15, Subpart C, section 15.209; RSS-247 and RSS-GEN See section 6.3 for Measurement Uncertainty
3	Spurious Radiated RF Emissions, 9 kHz – 30 MHz and 1000 MHz – 25000 MHz	The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; CFR Title 47, Part 15, Subpart C, section 15.247(d); RSS-247 and RSS-GEN See section 6.3 for Measurement Uncertainty
4	Fundamental and Emissions produced by the intentional radiator in non-restricted bands, 9 kHz – 25 GHz	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247(d); RSS-247 and RSS-GEN
5	Emissions produced by the intentional radiator in restricted bands, 9 kHz – 25 GHz	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.205, 15.209, section 15.247 (d); RSS-247 and RSS-GEN
6	DTS Bandwidth	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (a)(2); RSS-247
7	Maximum Conducted Output Power	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (b)(3); RSS-247
8	RF Conducted Antenna Test	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (d); RSS-247
9	Power Spectral Density from the Intentional Radiator to the Antenna	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (e); RSS-247

1. PURPOSE

This document is a qualification test report based on the emissions tests performed on the Comcast XH Keypad ZB3.0 2020, Part Number: H34450BA00-00007. The emissions measurements were performed according to the measurement procedure described in ANSI C63.4 and ANSI C63.10. The tests were performed to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT hereafter, are within the **Class B** specification limits defined by Code of Federal Regulations Title 47, Part 15 Subpart B sections 15.107, 15.109; and Part 15 Subpart C sections 15.205, 15.209 and 15.247; RSS-247 and RSS-Gen.

1.1 Decision Rule & Risk

If a measured value exceeds a specification limit it implies non-compliance. If the value is below a specification limit it implies compliance. Measurement uncertainty of the laboratory is reported with all measurement results but generally not taken into consideration unless a standard, rule or law requires it to be considered.

Qualification test reports are only produced for products that are in compliance with the test requirements, therefore results are always in conformity. Otherwise, an engineering report or just the data is provided to the customer.

When performing a measurement and making a statement of conformity, in or out-of-specification to manufacturer's specifications or Pass/Fail against a requirement, there are two possible outcomes:

- The result is reported as conforming with the specification
- The result is reported as not conforming with the specification

The decision rule is defined below.

When the test result is found to be below the limit but within our measurement uncertainty of the limit, it is our policy that the final acceptance decision is left to the customer, after discussing the implications and potential risks of the decision.

When the test result is found to be exactly on the specification, it is our policy, in the case of unwanted emissions measurements to consider the result non-compliant, however, the final decision is left to the customer, after discussing the implications and potential risks of the decision.

When the test result is found to be over the specification limit under any condition, it is our policy to consider the result non-compliant.

In terms of uncertainty of measurement, the laboratory is a calibrated and tightly controlled environment and generally exceptionally stable, the measurement uncertainties are evaluated without the considering of the test sample. When it comes to the test sample however, as most testing is performed on a single sample rather than a sample population, and that sample is often a pre-production representation of the final product, that test sample represents a significantly higher source of measurement uncertainty. We advise our customers of this and that when in doubt (small test to limit margins), they may wish to perform statistical sampling on a population to gain a higher confidence in the results. All lab reported results are that of a single sample in any event.

2. ADMINISTRATIVE DATA

2.1 Location of Testing

The emissions tests described herein were performed at the test facility of Compatible Electronics, 114 Olinda Drive, Brea, California 92823.

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

Universal Electronics, Inc

Jesse Mendez Staff Engineer, Electrical

Compatible Electronics Inc.

James Ross Test Engineer
Kyle Fujimoto Test Engineer

2.4 Date Test Sample was Received

The test sample was received on April 17, 2020. Received as described in product description.

2.5 Disposition of the Test Sample

The test sample has not been returned to Universal Electronics, Inc. as of the date of this test report.

2.6 Abbreviations and Acronyms

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

EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Model
S/N	Serial Number
ITE	Information Technology Equipment
DoC	Declaration of Conformity
N/A	Not Applicable
Tx	Transmit
Rx	Receive
Inc.	Incorporated
RF	Radio Frequency

3. APPLICABLE DOCUMENTS

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

SPEC	TITLE
FCC Title 47, Part 15 Subpart C	FCC Rules – Radio frequency devices (including digital devices) – Intentional Radiators
FCC Title 47, Part 15 Subpart B	FCC Rules – Radio frequency devices (including digital devices) – Unintentional Radiators
RSS-247 Issue 2: 2017	Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices
RSS Gen Issue 5 + Amendment 1: 2019	General Requirements for Compliance of Radio Apparatus
KDB 558074 D01 v05r02	Guidance for Performing Compliance Measurements on Digital Transmission System, Frequency Hopping Spread Spectrum System, and Hybrid System Devices Operating Under Section 15.247 of the FCC Rules
ANSI C63.4: 2014	American National Standard for 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 of procedure for compliance testing of unlicensed wireless devices

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration – Emissions

The Comcast XH Keypad ZB3.0 2020, Part Number: H34450BA00-00007 (EUT) was setup in a stand-alone configuration. The EUT was investigated in all three orthogonal axes. During the testing, the EUT was continuously transmitting at 2405 MHz, 2440 MHz, or 2475 MHz. The EUT was tested from 9 kHz to 25 GHz.

Both antennas of the EUT were tested.

Fresh batteries were installed inside the EUT prior to the testing.

The EUT was put into programming mode by holding the "A" and "B" buttons when inserting the batteries. This allowed the EUT to change channels and transmit antenna by pressing any button.

Pressing any button once caused the EUT transmit at 2405 MHz on antenna 1
Pressing any button twice caused the EUT transmit at 2440 MHz on antenna 1
Pressing any button three times caused the EUT transmit at 2475 MHz on antenna 1
Pressing any button four times caused the EUT transmit at 2405 MHz on antenna 2
Pressing any button five times caused the EUT transmit at 2440 MHz on antenna 2
Pressing any button six times caused the EUT transmit at 2475 MHz on antenna 2

The firmware is stored in one of the network drives in the company's server.

The final radiated data for the EUT was taken in the mode described above. Please see Appendix E for the data sheets.

4.1.1 Cable Construction and Termination

The EUT had no external cables.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
COMCAST XH KEYPAD ZB3.0 2020 (EUT)	UNIVERSAL ELECTRONICS, INC.	Part Number: H34450BA00-00007	N/A	MG3-H34450
LAPTOP*	HEWLETT PACKARD	HSTNN-C82C	N/A	N/A
AC ADAPTER FOR LAPTOP*	HEWLETT PACKARD	HSTNN-DA40	N/A	N/A
PROGRAM BOARD*	UNIVERSAL ELECTRONICS, INC.	FTD1232	N/A	N/A
FIRMWARE*	UNIVERSAL ELECTRONICS, INC.	RADIO CONTROL CONSOLE	v4.6.2	N/A

5.2 Emissions Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. CYCLE
RF RADIATED AND CONDUCED EMISSIONS TEST EQUIPMENT					
TDK TestLab	TDK RF Solutions, Inc.	9.22	700145	N/A	N/A
EMI Receiver, 20 Hz – 26.5 GHz	Keysight Technologies	N9038A	MY51210150	August 23, 2019	1 Year
System Controller	Sunol Sciences Corporation	SC110V	112213-1	N/A	N/A
Turntable	Sunol Sciences Corporation	2011VS	N/A	N/A	N/A
Antenna-Mast	Sunol Sciences Corporation	TWR95-4	112213-3	N/A	N/A
Loop Antenna	Com-Power	AL-130R	121090	February 5, 2019	2 Year
CombiLog Antenna	Com-Power	AC-220	61093	June 5, 2019	2 Year
Horn Antenna	Com-Power	AH-118	10050113	February 4, 2020	2 Year
Preamplifier	Com-Power	PA-118	181653	February 5, 2020	1 Year
Computer	Hewlett Packard	p6716f	MXX1030PX0	N/A	N/A
LCD Monitor	Hewlett Packard	52031a	3CQ046N3MG	N/A	N/A
Preamplifier	Com-Power	PA-840	711013	April 9, 2020	2 Year
Horn Antenna	Com-Power	AH-826	71957	N/A	N/A

6. TEST SITE DESCRIPTION

6.1 Test Facility Description

Please refer to section 2.1 of this report for emissions test location.

6.2 EUT Mounting, Bonding and Grounding

For frequencies 1 GHz and below: The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 0.8 meters above the ground plane.

For frequencies above 1 GHz: The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 1.5 meters above the ground plane.

The EUT was not grounded.

6.3 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	2.73 dB
Radiated disturbance (electric field strength on an open area test site or alternative test site)	(30 MHz – 1 000 MHz)	6.3 dB	3.27 dB (Vertical) 3.19 dB (Horizontal)
Radiated disturbance (electric field strength on an open area test site or alternative test site)	(1 GHz - 6 GHz)	5.2 dB	3.95 dB
Radiated disturbance (electric field strength on an open area test site or alternative test site)	(6 GHz – 18 GHz)	5.5 dB	3.95 dB
Radiated disturbance (electric field strength on an open area test site or alternative test site)	(18 GHz – 26.5 GHz)	N/A	4.69 dB
Radiated disturbance (electric field strength on an open area test site or alternative test site)	(26.5 GHz – 40 GHz)	N/A	4.55 dB

7. CHARACTERISTICS OF THE TRANSMITTER

7.1 Channel Description and Frequencies

The EUT operates on fifteen channels using the IEEE 802.15.4 protocol. The channel and frequencies are shown below.

Channel 11 – 2405 MHz
Channel 12 – 2410 MHz
Channel 13 – 2415 MHz
Channel 14 – 2420 MHz
Channel 15 – 2425 MHz
Channel 16 – 2430 MHz
Channel 17 – 2435 MHz
Channel 18 – 2440 MHz
Channel 19 – 2445 MHz
Channel 20 – 2450 MHz
Channel 21 – 2455 MHz
Channel 22 – 2460 MHz
Channel 23 – 2465 MHz
Channel 24 – 2470 MHz
Channel 25 – 2475 MHz

7.2 Antenna Gain

The gain of the green inverted F PCB trace antenna is 1.72 dBi.
The gain of the red inverted F PCB trace antenna is 1.5 dBi.

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

The EMI Receiver was used as a measuring meter. A quasi-peak and/or average reading was taken only where indicated in the data sheets. A 10 dB attenuator was used for the protection of the EMI Receiver input stage, and the offset was adjusted accordingly to read the actual data measured. The LISN output was measured using the EMI Receiver. The output of the second LISN was terminated by a 50-ohm termination. The effective measurement bandwidth used for this test was 9 kHz.

Please see section 6.2 of this report for mounting, bonding, and grounding of the EUT. The EUT was powered through the LISN, which was bonded to the ground plane. The LISN power was filtered and the filter was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI 63:4. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The conducted emissions from the EUT were maximized for operating mode as well as cable placement. The final data was collected under program control by computer software. The final qualification data is located in Appendix E.

Test Results:

This test was not performed because the EUT operates on battery power only and cannot be plugged into the AC public mains

8.1.2 Radiated Emissions Test

The EMI Receiver was used as the measuring meter. Preamplifiers were used to increase the sensitivity of the instrument. The EMI Receiver was initially used with the Analyzer mode feature activated. In this mode, the EMI receiver can then record the actual frequency to be measured. This final reading is then taken accurately in the EMI Receiver mode, which takes into account the cable loss, amplifier gain and antenna factors, so that a true reading is compared to the true limit. The effective measurement bandwidth used for the radiated emissions test was according to the frequency measured.

The frequencies below 1 GHz were quasi-peaked using the quasi-peak detector of the EMI Receiver.

All other frequencies above 1 GHz were averaged using the average detector of the EMI Receiver.

The EMI test chamber of Compatible Electronics, Inc. was used for radiated emissions testing. This test site is in full compliance with ANSI C63.4. 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 (for E field radiated field strength).

The EUT was tested at a 3-meter test distance. The six highest emissions are listed in Table 1.

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

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
9 kHz to 150 kHz	200 Hz	Loop Antenna
150 kHz to 30 MHz	9 kHz	Loop Antenna
30 MHz to 1 GHz	120 kHz	CombiLog Antenna
1 GHz to 25 GHz	1 MHz	Horn Antenna

Test Results:

The EUT complies with the **Class B** limits of **CFR** Title 47, Part 15, Subpart B; and the limits of CFR Title 47, Part 15, Subpart C sections 15.205, 15.209 and 15.247; and RSS-GEN and RSS-247 for radiated emissions.

8.1.3 RF Emissions Test Results

Table 1 RADIATED EMISSION RESULTS
Comcast XH Keypad ZB3.0 2020, Part Number: H34450BA00-00007

Frequency MHz	Corrected Reading* dBuV/m	Specification Limit dBuV/m	Delta (Cor. Reading – Spec. Limit) dB
4880 (V) (X-Axis) (Ant 2)	42.53 (AVG)	53.97	-11.44
4880 (V) (X-Axis) (Ant 1)	41.76 (AVG)	53.97	-12.21
828.40 (H) (X-Axis) (Ant 2)	32.87 (QP)	46.00	-13.13
4880 (H) (Y-Axis) (Ant 1)	40.55 (AVG)	53.97	-13.42
803.60 (H) (X-Axis) (Ant 2)	32.45 (QP)	46.00	-13.55
4950 (H) (X-Axis) (Ant 2)	39.83 (AVG)	53.97	-14.14

Notes:
* The complete emissions data is given in Appendix E of this report.
(V) Vertical
(H) Horizontal
(AVG) Average
(QP) Quasi-Peak

8.1.4 Sample Calculations

A correction factor for the antenna, cable and a distance factor (if any) must be applied to the meter reading before a true field strength reading can be obtained. This Corrected Meter Reading is then compared to the specification limit in order to determine compliance with the limits.

Conversion to logarithmic terms: Specification limit (μV/m) log x 20 = Specification Limit in dBuV/m

To correct for distance when measuring at a distance other than the specification

For measurements below 30 MHz: (Specification distance / test distance) log x 40 = distance factor

For measurements above 30 MHz: (Specification distance / test distance) log x 20 = distance factor

Note: When using an Active Antenna, the Antenna factor shall be subtracted due to the combination of the internal amplification and antenna loss.

Corrected Meter Reading = meter reading + F – A + C

where: F = antenna factor

A= amplifier gain

C = cable loss

The correction factors for the antenna and the amplifier gain are attached in Appendix D of this report. The data sheets are attached in Appendix E.

The distance factor D is 0 when the test is performed at the required specification distance.

8.2 DTS Bandwidth

The DTS Bandwidth was measured using the EMI Receiver. The bandwidth was measured using a direct connection from the EUT. The following steps were performed for measuring the DTS Bandwidth.

1. Set RBW = 100 kHz
2. Set the video bandwidth (VBW) to equal or greater than 3 times the RBW
3. Detector = Peak
4. Trace Mode = Max Hold
5. Sweep = Auto Couple
6. Allow the trace to stabilize
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Test Results:

The EUT complies with the relevant requirements of CFR Title 47, Part 15, Subpart C section 15.247 (a)(2); and RSS-247.

8.3 Maximum Peak Conducted Output Power

The Conducted Peak Output Power was measured using the EMI Receiver. The peak output power was measured using the peak power measurement procedure described in section 11.9.1.1 of KDB 558074 v05r02. The Maximum Conducted Output Power was then taken.

1. Set the RBW ≥ DTS Bandwidth
2. Set the VBW ≥ [3 X RBW]
3. Set span ≥ [3 X RBW]
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Allow trace to fully stabilize
9. Use the peak marker function to determine the peak amplitude level.

Test Results:

The EUT complies with the relevant requirements of CFR Title 47, Part 15, Subpart C section 15.247 (b)(3); and RSS-247.

8.4 Emissions in Non-Restricted Bands

The emissions in the non-restricted frequency bands measurements were performed using the EMI receiver directly connected to the EUT. The reference level was established by setting the instrument center frequency to DTS channel center frequency. The span was set to ≥ 1.5 times the DTS bandwidth. The RBW was set to 100 kHz and the VBW was set to 300 kHz. A peak detector was used with sweep set to auto. A max hold trace was used and allowed to fully stabilize. The peak marker function was used to determine the level and 20 dB below that was the reference level. For emission level measurement, the center frequency and span were set to encompass the frequency range to be measured. The RBW was set to 100 kHz and the VBW was set to 300 kHz. A peak detector was used with a sweep time set to auto. The number of measurement points were greater than the span/RBW. A max hold trace was used and allowed to fully stabilize. The peak marker function was used to determine the maximum amplitude level. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with the relevant requirements of CFR Title 47, Part 15, Subpart C section 15.247 (d); and RSS-247.

8.5 RF Band Edges

The RF band edges were measured using the EMI Receiver. The RF band edges were measured using a direct connection from the RF out on the EUT into the input of the EMI Receiver. The following steps were performed for measuring the spectral density.

The RF band edges were taken at 2390 MHz when the EUT was on the low channel and 2483.5 MHz when the EUT was on the high channel using the EMI Receiver. A preamplifier was used to boost the signal level, with the plots being taken at a 3 meter test distance. The radiated emissions test procedure as describe in section 8.1.2 of this test report was used to maximize the emission.

The RF band edge was also taken at 2400 MHz when the EUT was on the low channel. The following steps were performed for measuring the band edge at 2400 MHz:

1. Set analyzer center frequency to DTS channel center frequency
2. Set the span wide enough to cover the band edges.
3. Set the RBW to 100 kHz
4. Set the VBW $\geq$ 3 X RBW
5. Detector = Peak
6. Sweep time = auto couple
7. Allow the trace to stabilize
8. Use the peak marker function to determine the maximum amplitude level

Test Results:

The EUT complies with the relevant requirements of CFR Title 47, Part 15, Subpart C section 15.247 (d) for band edges; and RSS-247. Please see the data sheets located in Appendix E.

8.6 Spectral Density Test

The spectrum density output was measured using the EMI Receiver. The spectral density output was measured using a direct connection from the RF out on the EUT into the input of the EMI Receiver. The following steps were performed for measuring the spectral density.

1. Set analyzer center frequency to DTS channel center frequency
2. Set the span to at least 1.5 times the OBW.
3. Set the RBW to 3 kHz ≤ RBW ≤ 100 kHz
4. Set the VBW ≥ [3 X RBW]
5. Detector = peak
6. Sweep time = auto couple
7. Trace mode = max hold
8. Allow trace to fully stabilize
9. Use the peak marker function to determine the maximum amplitude level within the RBW
10. If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat.

Test Results:

The EUT complies with the relevant requirements of CFR Title 47, Part 15, Subpart C section 15.247 (e); and RSS-247.

8.7 Variation of the Input Power

The variation of the input power test was performed using the EMI Receiver. The EUT input power was varied between 85% and 115% of the nominal rated supply voltage. The carrier frequency was monitored for any change in amplitude.

Test Results:

This test was not performed because the EUT is not AC powered.

8. CONCLUSIONS

The Comcast XH Keypad ZB3.0 2020, Part Number: H34450BA00-00007 (EUT), as tested, meets all of the specification limits defined in the RSS-247, RSS-Gen, **Class B** specification limits defined in FCC Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209 and 15.247.

APPENDIX A

LABORATORY ACCREDITATIONS AND RECOGNITIONS

LABORATORY ACCREDITATIONS AND RECOGNITIONS

NVLAP TESTING
NVLAP LAB CODE 200528-0

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 Test Site Registration Number: 2154A

APPENDIX B

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC Subpart B, FCC 15.247, RSS-247, and RSS-GEN specifications.

All the rework described below was implemented during the test in a method that could be reproduced in all the units by the manufacturer.

No modifications were made to the EUT during the testing.

APPENDIX C

ADDITIONAL MODELS COVERED UNDER THIS REPORT

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST	Comcast XH Keypad ZB3.0 2020 Part Number: H34450BA00-00007 S/N: N/A

There are no additional models covered under this report.

APPENDIX D

DIAGRAMS AND CHARTS

FIGURE 1: CONDUCTED EMISSIONS TEST SETUP

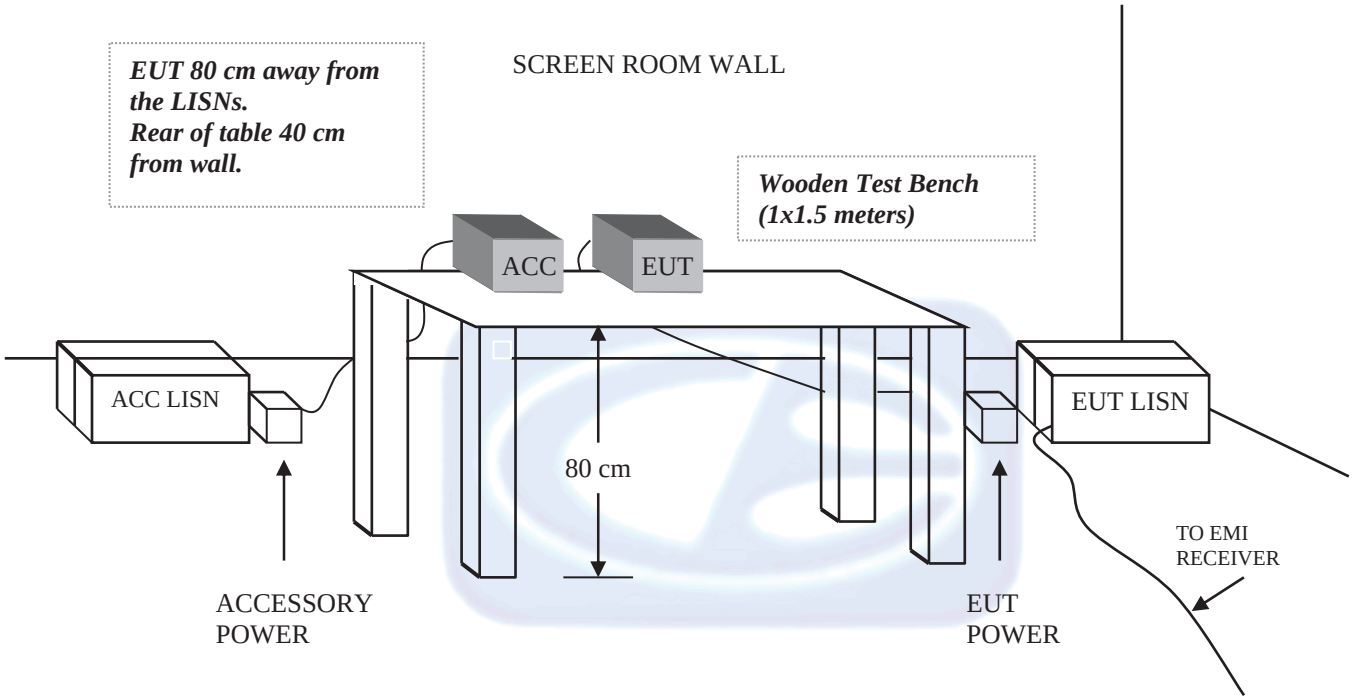
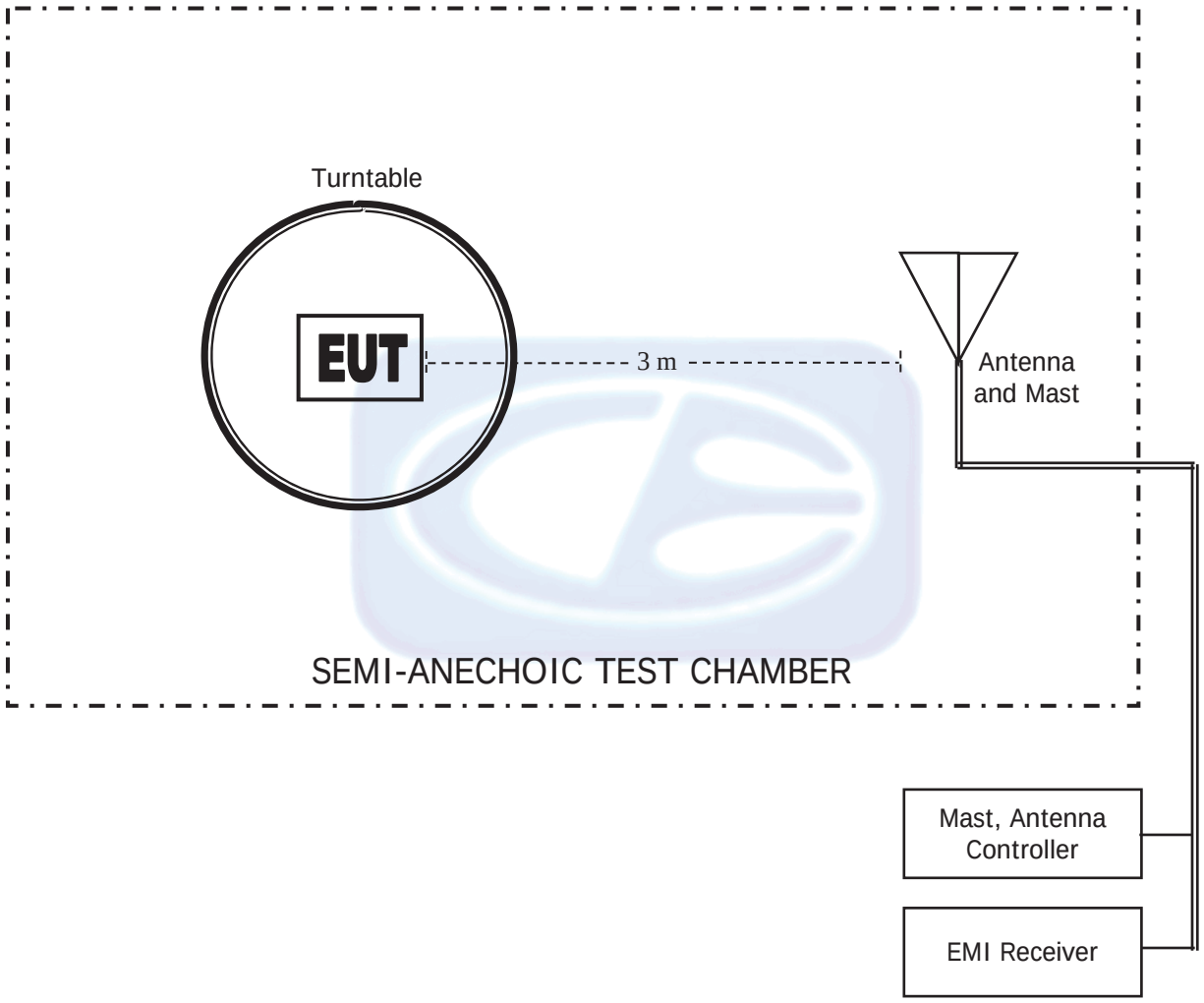


FIGURE 2: LAYOUT OF THE SEMI -ANECHOIC TEST CHAMBER



COM-POWER AL-130R

LOOP ANTENNA

S/N: 121090

CALIBRATION DATE: FEBRUARY 5, 2019

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.01	15.6	-35.9
0.02	14.8	-36.7
0.03	15.6	-35.9
0.04	15.1	-36.4
0.05	14.4	-37.0
0.06	14.6	-36.9
0.07	14.4	-37.1
0.08	14.3	-37.1
0.09	14.5	-36.9
0.10	14.1	-37.3
0.20	14.1	-37.3
0.30	14.0	-37.4
0.40	14.0	-37.4
0.50	14.2	-37.2
0.60	14.2	-37.2
0.70	14.2	-37.2
0.80	14.2	-37.3
0.90	14.3	-37.2
1.00	14.5	-37.0
2.00	14.5	-36.9
3.00	14.5	-36.9
4.00	14.7	-36.8
5.00	14.6	-36.9
6.00	14.6	-36.9
7.00	14.6	-36.9
8.00	14.6	-36.9
9.00	14.6	-36.9
10.00	14.8	-36.6
11.00	14.9	-36.6
12.00	14.8	-36.6
13.00	14.8	-36.7
14.00	14.6	-36.8
15.00	14.5	-36.9
16.00	14.5	-37.0
17.00	14.6	-36.9
18.00	14.7	-36.7
19.00	14.8	-36.6
20.00	14.9	-36.6
21.00	14.6	-36.8
22.00	14.2	-37.2
23.00	13.7	-37.7
24.00	13.3	-38.2
25.00	13.0	-38.5
26.00	12.9	-38.6
27.00	13.0	-38.5
28.00	13.1	-38.4
29.00	13.1	-38.4
30.00	12.9	-38.5

COM-POWER AC-220

COMBILOG ANTENNA

S/N: 61093

CALIBRATION DATE: JUNE 5, 2019

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	22.10	200	15.30
35	20.90	250	16.80
40	20.10	300	19.00
45	19.40	350	19.60
50	18.40	400	21.70
60	15.10	450	21.60
70	12.00	500	22.20
80	11.60	550	22.70
90	13.50	600	24.20
100	14.70	650	24.40
120	15.90	700	24.50
125	15.90	750	25.40
140	14.80	800	26.30
150	15.50	850	26.70
160	19.80	900	27.50
175	15.20	950	27.80
180	14.90	1000	27.90

COM POWER AH-118

HORN ANTENNA

S/N: 10050113

CALIBRATION DATE: FEBRUARY 4, 2020

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	24.343	10.0	38.826
1.5	25.419	10.5	39.102
2.0	28.838	11.0	39.259
2.5	28.971	11.5	39.920
3.0	29.919	12.0	40.149
3.5	30.674	12.5	40.576
4.0	31.670	13.0	40.264
4.5	32.437	13.5	40.364
5.0	33.414	14.0	40.424
5.5	34.003	14.5	41.677
6.0	34.799	15.0	43.010
6.5	35.381	15.5	39.799
7.0	37.024	16.0	40.187
7.5	34.403	16.5	40.155
8.0	37.445	17.0	40.507
8.5	37.390	17.5	41.963
9.0	38.076	18.0	43.196
9.5	38.809		

COM-POWER PA-118

PREAMPLIFIER

S/N: 181653

CALIBRATION DATE: FEBRUARY 5, 2020

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	40.10	6.0	40.60
1.1	40.10	6.5	39.50
1.2	40.00	7.0	39.40
1.3	39.70	7.5	39.30
1.4	39.60	8.0	39.20
1.5	39.90	8.5	40.50
1.6	40.00	9.0	39.60
1.7	39.70	9.5	39.50
1.8	39.50	10.0	38.80
1.9	39.60	11.0	38.70
2.0	39.90	12.0	42.20
2.5	40.10	13.0	40.00
3.0	40.80	14.0	40.30
3.5	40.60	15.0	40.20
4.0	40.50	16.0	41.00
4.5	41.60	17.0	39.70
5.0	39.20	18.0	40.90
5.5	40.00		

COM-POWER PA-840

MICROWAVE PREAMPLIFIER

S/N: 711013

CALIBRATION DATE: APRIL 9, 2020

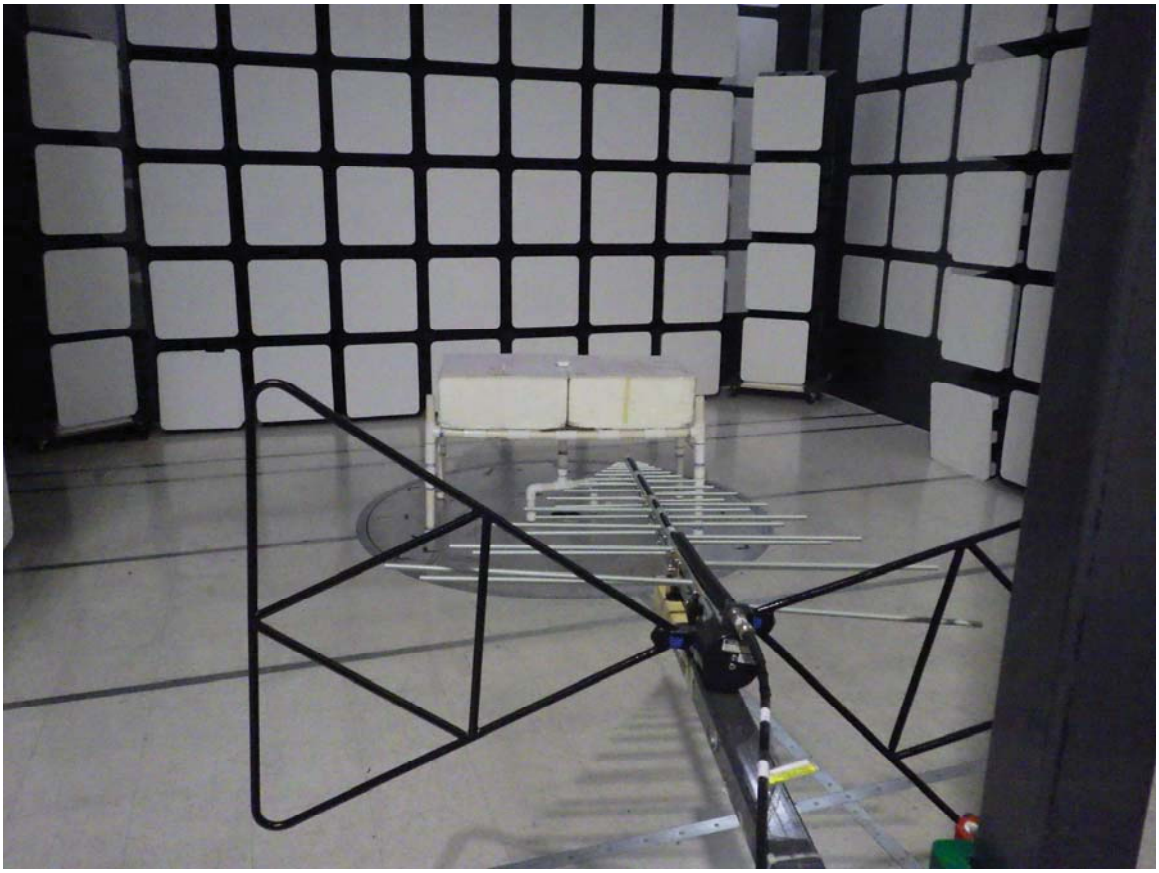
FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	26.88	31.0	24.65
19.0	25.52	31.5	25.92
20.0	26.26	32.0	24.83
21.0	24.96	32.5	26.90
22.0	24.74	33.0	26.27
23.0	25.45	33.5	25.18
24.0	26.65	34.0	23.14
25.0	26.02	34.5	25.81
26.0	27.16	35.0	27.63
26.5	28.08	35.5	26.53
27.0	25.99	36.0	24.41
27.5	25.35	36.5	27.02
28.0	25.77	37.0	25.42
28.5	27.22	37.5	24.71
29.0	28.38	38.0	24.36
29.5	25.63	38.5	23.16
30.0	27.08	39.0	21.44
30.5	26.10	39.5	21.15
		40.0	21.20

COM-POWER AH-826

HORN ANTENNA

S/N: 71957

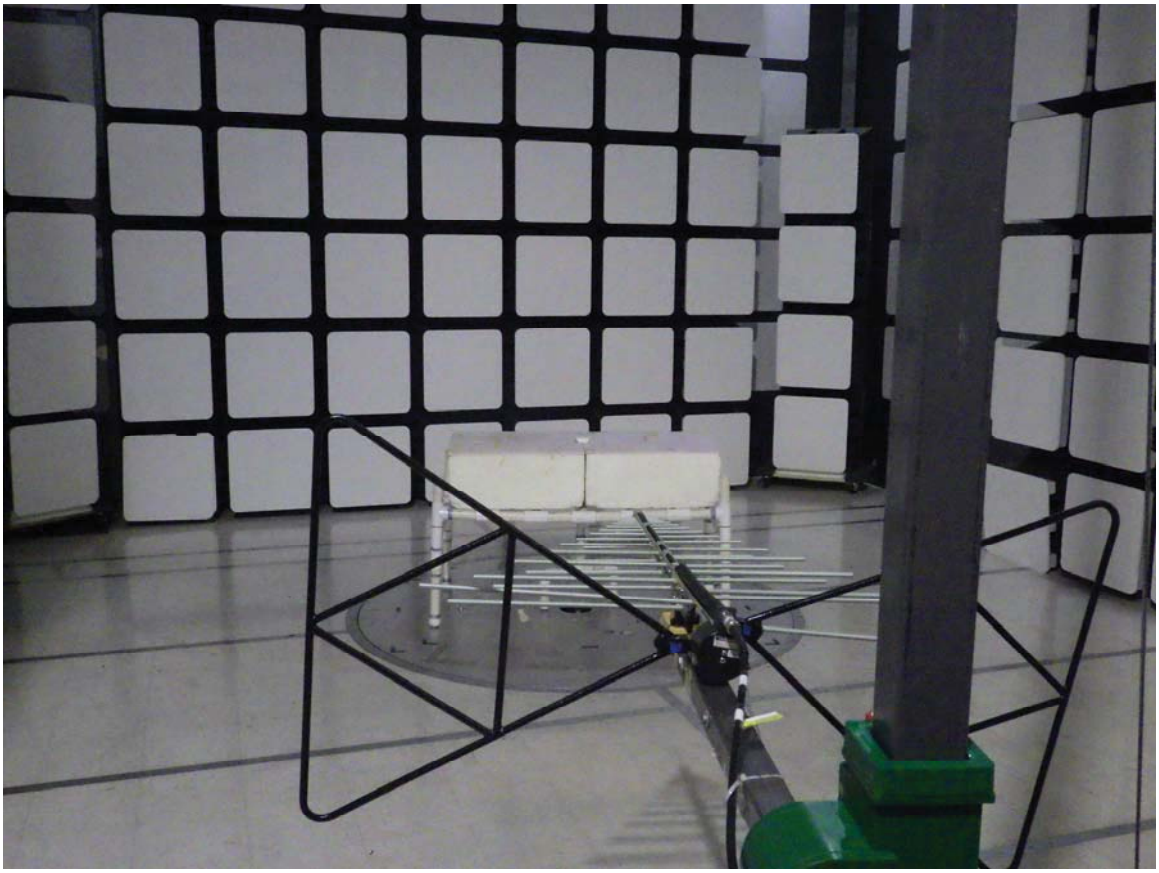
FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	33.5	22.5	35.5
18.5	33.5	23.0	35.9
19.0	34.0	23.5	35.7
19.5	34.0	24.0	35.6
20.0	34.3	24.5	36.0
20.5	34.9	25.0	36.2
21.0	34.7	25.5	36.1
21.5	35.0	26.0	36.2
22.0	35.0	26.5	35.7



FRONT VIEW

UNIVERSAL ELECTRONICS, INC.
COMCAST XH KEYPAD ZB3.0 2020
PART NUMBER: H34450BA00-00007
FCC SUBPART B AND C; RSS-247 AND RSS-GEN – RADIATED EMISSIONS – BELOW 1 GHz

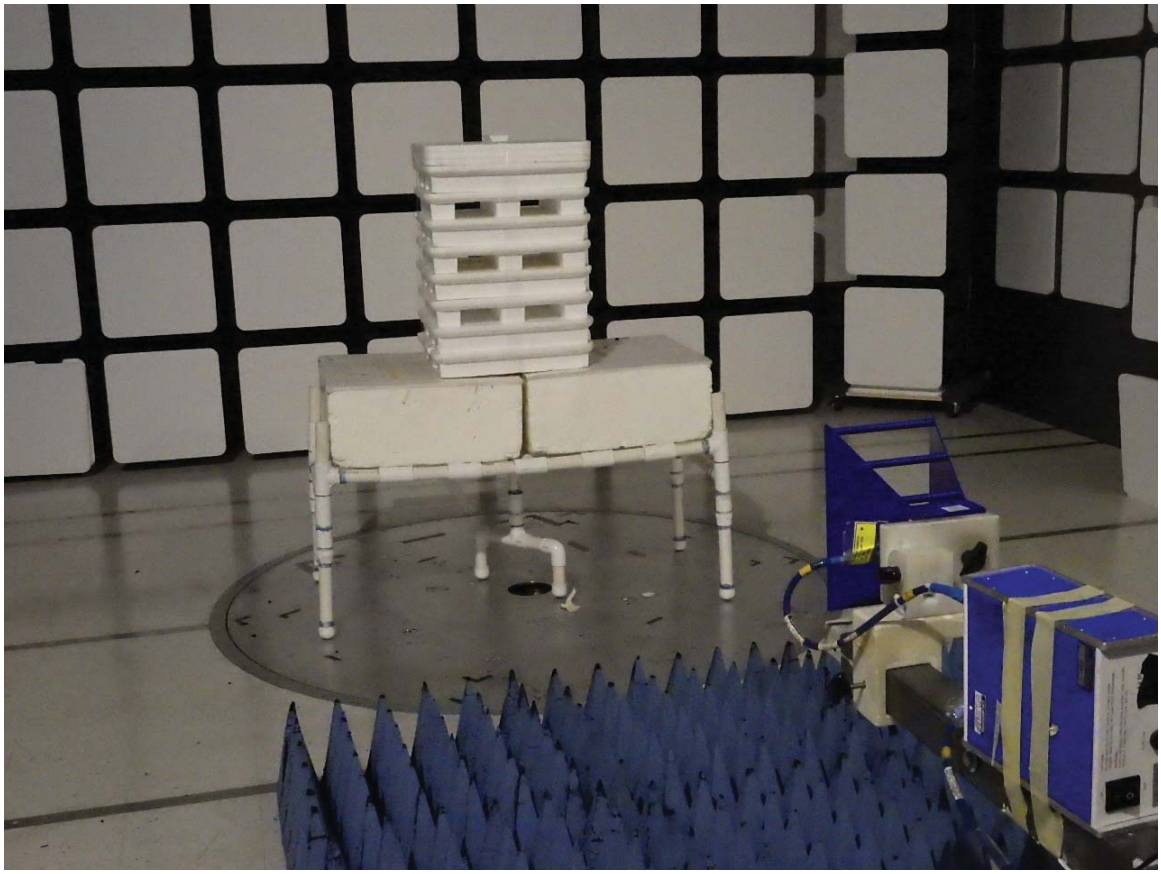
PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

UNIVERSAL ELECTRONICS, INC.
COMCAST XH KEYPAD ZB3.0 2020
PART NUMBER: H34450BA00-00007
FCC SUBPART B AND C; RSS-247 AND RSS-GEN – RADIATED EMISSIONS – BELOW 1 GHz

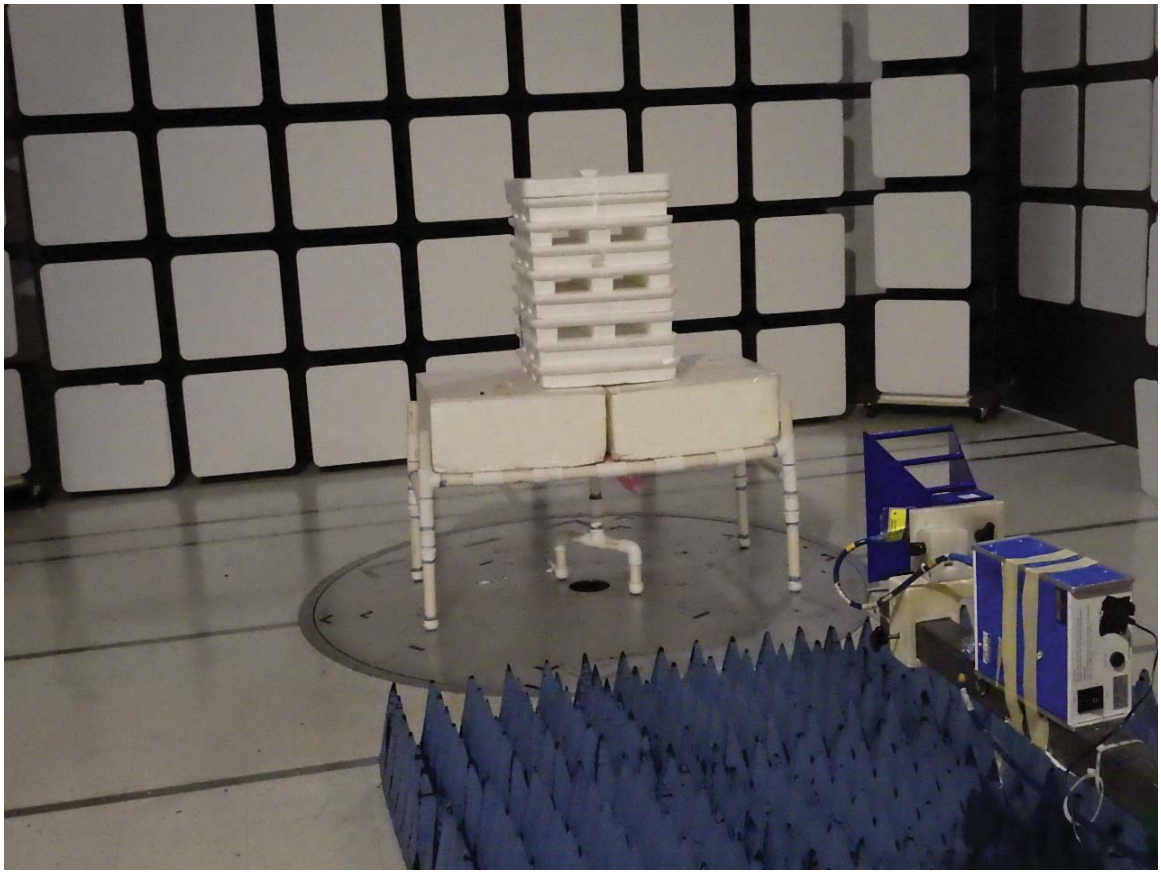
PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



FRONT VIEW

UNIVERSAL ELECTRONICS, INC.
COMCAST XH KEYPAD ZB3.0 2020
PART NUMBER: H34450BA00-00007
FCC SUBPART B AND C; RSS-247 AND RSS-GEN – RADIATED EMISSIONS – ABOVE 1 GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

UNIVERSAL ELECTRONICS, INC.
COMCAST XH KEYPAD ZB3.0 2020
PART NUMBER: H34450BA00-00007
FCC SUBPART B AND C; RSS-247 AND RSS-GEN – RADIATED EMISSIONS – ABOVE 1 GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

APPENDIX E

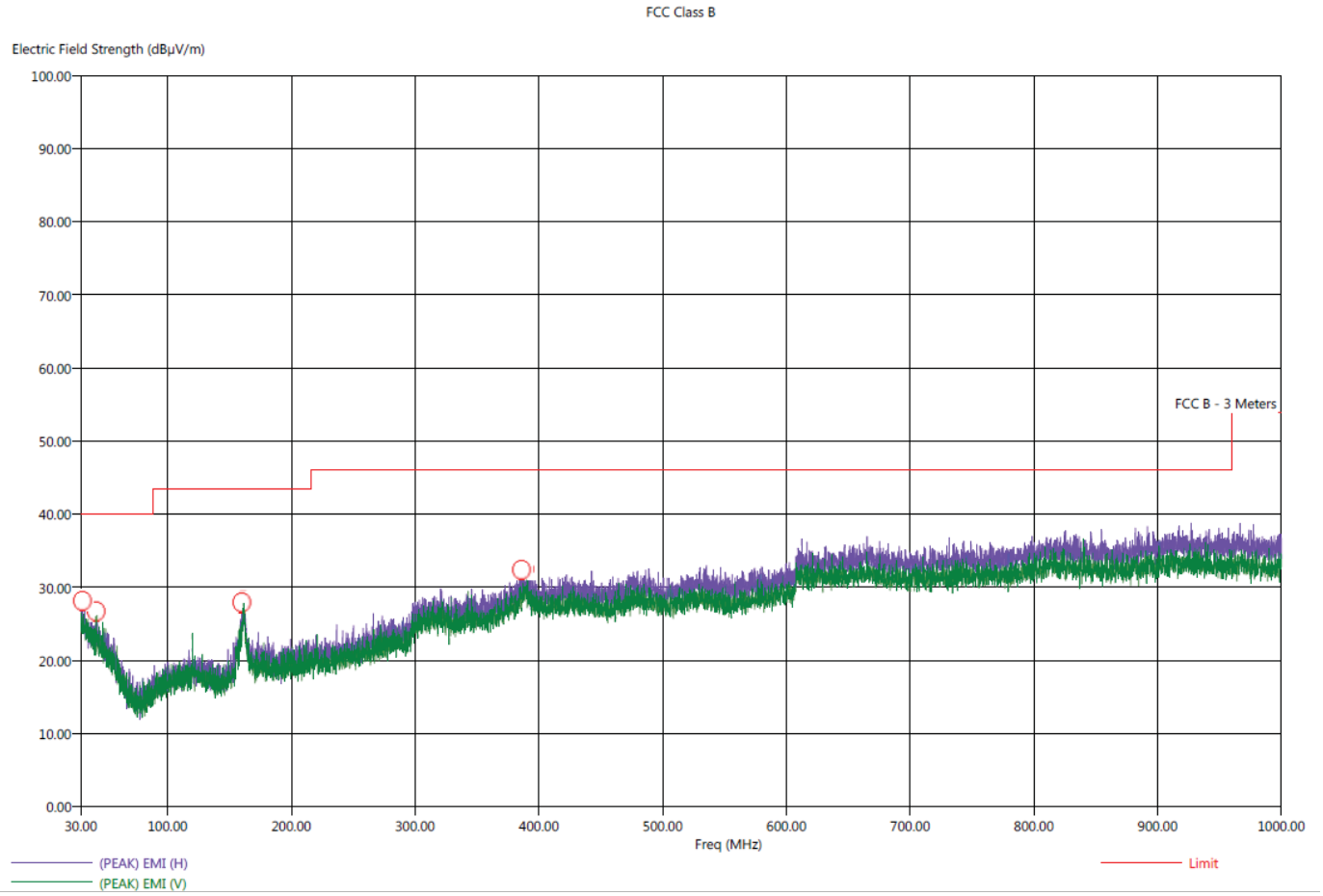
DATA SHEETS

RADIATED EMISSIONS

DATA SHEETS

Title: Pre-Scan - FCC Class B
File: 1 - Pre Scan - X-Axis - FCC Class B - 30 MHz to 1000 MHz - 05-08-2020.set
Operator: Kyle Fujimoto
EUT Type: Comcast XH Keypad ZB3.0 2020
EUT Condition: The EUT was transmitting continuously at 2440 MHz
Company: Universal Electronics, Inc.
P/N: H34450BA00-00007
S/N: N/A
X-Axis - Antenna 1

5/8/2020 3:13:42 PM
Sequence: Preliminary Scan



Title: Final Scan - FCC Class B
File: 1 - Final Scan - FCC Class B - 30 MHz to 1000 MHz - 05-08-2020.set
Operator: Kyle Fujimoto
EUT Type: Comcast XH Keypad ZB3.0 2020
EUT Condition: The EUT was trasmitting continuously at 2440 MHz
Company: Universal Electronics, Inc.
P/N: H34450BA00-00007
S/N: N/A
X-Axis (Worst Case) - Antenna 1

5/8/2020 3:56:35 PM
Sequence: Final Measurements

FCC Class B

Freq (MHz)	Pol	(PEAK) EMI (dBµV/m)	(QP) EMI (dBµV/m)	(PEAK) Margin (dB)	(QP) Margin (dB)	Limit (dBµV/m)	Transducer (dB)	Cable (dB)	Ttbl Agl (deg)	Twr Ht (cm)
31.30	H	29.25	23.76	-10.75	-16.24	40.00	21.66	0.33	283.00	334.08
42.30	H	26.70	21.35	-13.30	-18.65	40.00	19.75	0.39	253.25	159.04
160.10	H	28.62	23.22	-14.88	-20.28	43.50	20.01	0.87	40.25	398.20
161.10	H	30.16	24.95	-13.34	-18.55	43.50	21.80	0.88	103.00	223.64
386.00	H	33.00	27.71	-13.00	-18.29	46.00	22.86	1.50	19.50	176.17
388.60	H	33.95	28.32	-12.05	-17.68	46.00	23.43	1.50	27.25	242.56

FCC 15.247
Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel
Transmit Mode - Antenna 1 - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4810.00	46.56	V	73.97	-27.41	Peak	207.00	111.40	
4810.00	38.95	V	53.97	-15.02	Avg	207.00	111.40	
7215.00								**N/A - Done Via Conducted**
7215.00								**Not in Restricted Band**
9620.00								**N/A - Done Via Conducted**
9620.00								**Not in Restricted Band**
12025.00	46.96	V	73.97	-27.01	Peak	0.25	223.16	
12025.00	35.81	V	53.97	-18.16	Avg	0.25	223.16	
14430.00								**N/A - Done Via Conducted**
14430.00								**Not in Restricted Band**
16835.00								**N/A - Done Via Conducted**
16835.00								**Not in Restricted Band**
19240.00								**No Emission**
19240.00								**Detected**
21645.00								**N/A - Done Via Conducted**
21645.00								**Not in Restricted Band**
24050.00								**N/A - Done Via Conducted**
24050.00								**Not in Restricted Band**

FCC 15.247
Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel
Transmit Mode - Antenna 1 - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4810.00	44.71	V	73.97	-29.26	Peak	292.50	111.40	
4810.00	36.12	V	53.97	-17.85	Avg	292.50	111.40	
7215.00								**N/A - Done Via Conducted**
7215.00								**Not in Restricted Band**
9620.00								**N/A - Done Via Conducted**
9620.00								**Not in Restricted Band**
12025.00	46.88	V	73.97	-27.09	Peak	139.00	249.92	
12025.00	35.94	V	53.97	-18.03	Avg	139.00	249.92	
14430.00								**N/A - Done Via Conducted**
14430.00								**Not in Restricted Band**
16835.00								**N/A - Done Via Conducted**
16835.00								**Not in Restricted Band**
19240.00								**No Emission**
19240.00								**Detected**
21645.00								**N/A - Done Via Conducted**
21645.00								**Not in Restricted Band**
24050.00								**N/A - Done Via Conducted**
24050.00								**Not in Restricted Band**

FCC 15.247
Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel
Transmit Mode - Antenna 1 - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4810.00	45.19	V	73.97	-28.78	Peak	284.75	111.40	
4810.00	36.54	V	53.97	-17.43	Avg	284.75	111.40	
7215.00								**N/A - Done Via Conducted**
7215.00								**Not in Restricted Band**
9620.00								**N/A - Done Via Conducted**
9620.00								**Not in Restricted Band**
12025.00	46.44	V	73.97	-27.53	Peak	359.75	207.34	
12025.00	35.86	V	53.97	-18.11	Avg	359.75	207.34	
14430.00								**N/A - Done Via Conducted**
14430.00								**Not in Restricted Band**
16835.00								**N/A - Done Via Conducted**
16835.00								**Not in Restricted Band**
19240.00								**No Emission**
19240.00								**Detected**
21645.00								**N/A - Done Via Conducted**
21645.00								**Not in Restricted Band**
24050.00								**N/A - Done Via Conducted**
24050.00								**Not in Restricted Band**

FCC 15.247
Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel
Transmit Mode - Antenna 1 - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4810.00	45.68	H	73.97	-28.29	Peak	178.50	127.28	
4810.00	38.19	H	53.97	-15.78	Avg	178.50	127.28	
7215.00								**N/A - Done Via Conducted**
7215.00								**Not in Restricted Band**
9620.00								**N/A - Done Via Conducted**
9620.00								**Not in Restricted Band**
12025.00	46.97	H	73.97	-27.00	Peak	336.50	192.00	
12025.00	36.04	H	53.97	-17.93	Avg	336.50	192.00	
14430.00								**N/A - Done Via Conducted**
14430.00								**Not in Restricted Band**
16835.00								**N/A - Done Via Conducted**
16835.00								**Not in Restricted Band**
19240.00								**No Emission**
19240.00								**Detected**
21645.00								**N/A - Done Via Conducted**
21645.00								**Not in Restricted Band**
24050.00								**N/A - Done Via Conducted**
24050.00								**Not in Restricted Band**

FCC 15.247
Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel
Transmit Mode - Antenna 1 - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4810.00	44.53	H	73.97	-29.44	Peak	227.25	127.22	
4810.00	36.24	H	53.97	-17.73	Avg	227.25	127.22	
7215.00								**N/A - Done Via Conducted**
7215.00								**Not in Restricted Band**
9620.00								**N/A - Done Via Conducted**
9620.00								**Not in Restricted Band**
12025.00	46.64	H	73.97	-27.33	Peak	291.25	221.67	
12025.00	35.90	H	53.97	-18.07	Avg	291.25	221.67	
14430.00								**N/A - Done Via Conducted**
14430.00								**Not in Restricted Band**
16835.00								**N/A - Done Via Conducted**
16835.00								**Not in Restricted Band**
19240.00								**No Emission**
19240.00								**Detected**
21645.00								**N/A - Done Via Conducted**
21645.00								**Not in Restricted Band**
24050.00								**N/A - Done Via Conducted**
24050.00								**Not in Restricted Band**

FCC 15.247
Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel
Transmit Mode - Antenna 1 - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4810.00	44.60	H	73.97	-29.37	Peak	129.00	142.92	
4810.00	36.12	H	53.97	-17.85	Avg	129.00	142.92	
7215.00								**N/A - Done Via Conducted**
7215.00								**Not in Restricted Band**
9620.00								**N/A - Done Via Conducted**
9620.00								**Not in Restricted Band**
12025.00	47.09	H	73.97	-26.88	Peak	17.75	127.22	
12025.00	36.20	H	53.97	-17.77	Avg	17.75	127.22	
14430.00								**N/A - Done Via Conducted**
14430.00								**Not in Restricted Band**
16835.00								**N/A - Done Via Conducted**
16835.00								**Not in Restricted Band**
19240.00								**No Emission**
19240.00								**Detected**
21645.00								**N/A - Done Via Conducted**
21645.00								**Not in Restricted Band**
24050.00								**N/A - Done Via Conducted**
24050.00								**Not in Restricted Band**

FCC 15.247
Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Middle Channel
Transmit Mode - Antenna 1 - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	48.63	V	73.97	-25.34	Peak	339.75	127.82	
4880.00	41.76	V	53.97	-12.21	Avg	339.75	127.82	
7320.00	44.40	V	73.97	-29.57	Peak	0.00	190.98	
7320.00	33.91	V	53.97	-20.06	Avg	0.00	190.98	
9760.00								N/A - Done Via Conducted
9760.00								Not in Restricted Band
12200.00	46.12	V	73.97	-27.85	Peak	308.50	191.16	
12200.00	35.66	V	53.97	-18.31	Avg	308.50	191.16	
14640.00								N/A - Done Via Conducted
14640.00								Not in Restricted Band
17080.00								N/A - Done Via Conducted
17080.00								Not in Restricted Band
19520.00								No Emission
19520.00								Detected
21960.00								N/A - Done Via Conducted
21960.00								Not in Restricted Band
24400.00								N/A - Done Via Conducted
24400.00								Not in Restricted Band

FCC 15.247
Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Middle Channel
Transmit Mode - Antenna 1 - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	45.61	V	73.97	-28.36	Peak	194.75	109.85	
4880.00	37.50	V	53.97	-16.47	Avg	194.75	109.85	
7320.00	44.17	V	73.97	-29.80	Peak	280.75	127.16	
7320.00	33.16	V	53.97	-20.81	Avg	280.75	127.16	
9760.00								**N/A - Done Via Conducted**
9760.00								**Not in Restricted Band**
12200.00	46.41	V	73.97	-27.56	Peak	209.50	159.76	
12200.00	35.59	V	53.97	-18.38	Avg	209.50	159.76	
14640.00								**N/A - Done Via Conducted**
14640.00								**Not in Restricted Band**
17080.00								**N/A - Done Via Conducted**
17080.00								**Not in Restricted Band**
19520.00								**No Emission**
19520.00								**Detected**
21960.00								**N/A - Done Via Conducted**
21960.00								**Not in Restricted Band**
24400.00								**N/A - Done Via Conducted**
24400.00								**Not in Restricted Band**

FCC 15.247
Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Middle Channel
Transmit Mode - Antenna 1 - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	45.16	V	73.97	-28.81	Peak	267.25	127.16	
4880.00	36.86	V	53.97	-17.11	Avg	267.25	127.16	
7320.00	44.30	V	73.97	-29.67	Peak	6.25	143.76	
7320.00	33.25	V	53.97	-20.72	Avg	6.25	143.76	
9760.00								N/A - Done Via Conducted
9760.00								Not in Restricted Band
12200.00	46.59	V	73.97	-27.38	Peak	132.50	143.16	
12200.00	35.66	V	53.97	-18.31	Avg	132.50	143.16	
14640.00								N/A - Done Via Conducted
14640.00								Not in Restricted Band
17080.00								N/A - Done Via Conducted
17080.00								Not in Restricted Band
19520.00								No Emission
19520.00								Detected
21960.00								N/A - Done Via Conducted
21960.00								Not in Restricted Band
24400.00								N/A - Done Via Conducted
24400.00								Not in Restricted Band

FCC 15.247
Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Middle Channel
Transmit Mode - Antenna 1 - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	45.05	H	73.97	-28.92	Peak	340.25	206.92	
4880.00	36.43	H	53.97	-17.54	Avg	340.25	206.92	
7320.00	43.83	H	73.97	-30.14	Peak	36.75	127.34	
7320.00	33.07	H	53.97	-20.90	Avg	36.75	127.34	
9760.00								**N/A - Done Via Conducted**
9760.00								**Not in Restricted Band**
12200.00	46.43	H	73.97	-27.54	Peak	305.75	159.28	
12200.00	35.48	H	53.97	-18.49	Avg	305.75	159.28	
14640.00								**N/A - Done Via Conducted**
14640.00								**Not in Restricted Band**
17080.00								**N/A - Done Via Conducted**
17080.00								**Not in Restricted Band**
19520.00								**No Emission**
19520.00								**Detected**
21960.00								**N/A - Done Via Conducted**
21960.00								**Not in Restricted Band**
24400.00								**N/A - Done Via Conducted**
24400.00								**Not in Restricted Band**

FCC 15.247
Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Middle Channel
Transmit Mode - Antenna 1 - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	47.68	H	73.97	-26.29	Peak	226.25	111.88	
4880.00	40.55	H	53.97	-13.42	Avg	226.25	111.88	
7320.00	43.46	H	73.97	-30.51	Peak	335.00	143.28	
7320.00	32.99	H	53.97	-20.98	Avg	335.00	143.28	
9760.00								N/A - Done Via Conducted
9760.00								Not in Restricted Band
12200.00	47.40	H	73.97	-26.57	Peak	174.50	191.10	
12200.00	35.95	H	53.97	-18.02	Avg	174.50	191.10	
14640.00								N/A - Done Via Conducted
14640.00								Not in Restricted Band
17080.00								N/A - Done Via Conducted
17080.00								Not in Restricted Band
19520.00								No Emission
19520.00								Detected
21960.00								N/A - Done Via Conducted
21960.00								Not in Restricted Band
24400.00								N/A - Done Via Conducted
24400.00								Not in Restricted Band

FCC 15.247
Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Middle Channel
Transmit Mode - Antenna 1 - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	40.27	H	73.97	-33.70	Peak	203.25	127.22	
4880.00	29.52	H	53.97	-24.45	Avg	203.25	127.22	
7320.00	44.77	H	73.97	-29.20	Peak	62.25	249.38	
7320.00	33.38	H	53.97	-20.59	Avg	62.25	249.38	
9760.00								**N/A - Done Via Conducted**
9760.00								**Not in Restricted Band**
12200.00	46.25	H	73.97	-27.72	Peak	196.00	175.10	
12200.00	35.51	H	53.97	-18.46	Avg	196.00	175.10	
14640.00								**N/A - Done Via Conducted**
14640.00								**Not in Restricted Band**
17080.00								**N/A - Done Via Conducted**
17080.00								**Not in Restricted Band**
19520.00								**No Emission**
19520.00								**Detected**
21960.00								**N/A - Done Via Conducted**
21960.00								**Not in Restricted Band**
24400.00								**N/A - Done Via Conducted**
24400.00								**Not in Restricted Band**

FCC 15.247
Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel
Transmit Mode - Antenna 1 - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4950.00	46.31	V	73.97	-27.66	Peak	75.50	111.34	
4950.00	38.21	V	53.97	-15.76	Avg	75.50	111.34	
7425.00	45.83	V	73.97	-28.14	Peak	63.75	175.10	
7425.00	35.51	V	53.97	-18.46	Avg	63.75	175.10	
9900.00								**N/A - Done Via Conducted**
9900.00								**Not in Restricted Band**
12375.00	46.97	V	73.97	-27.00	Peak	277.75	222.50	
12375.00	36.03	V	53.97	-17.94	Avg	277.75	222.50	
14850.00								**N/A - Done Via Conducted**
14850.00								**Not in Restricted Band**
17325.00								**N/A - Done Via Conducted**
17325.00								**Not in Restricted Band**
19800.00								**No Emission**
19800.00								**Detected**
22275.00								**No Emission**
22275.00								**Detected**
24750.00								**N/A - Done Via Conducted**
24750.00								**Not in Restricted Band**

FCC 15.247
Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel
Transmit Mode - Antenna 1 - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4950.00	44.49	V	73.97	-29.48	Peak	189.75	175.04	
4950.00	35.54	V	53.97	-18.43	Avg	189.75	175.04	
7425.00	44.31	V	73.97	-29.66	Peak	160.50	127.22	
7425.00	33.72	V	53.97	-20.25	Avg	160.50	127.22	
9900.00								**N/A - Done Via Conducted**
9900.00								**Not in Restricted Band**
12375.00	46.31	V	73.97	-27.66	Peak	226.00	114.08	
12375.00	35.69	V	53.97	-18.28	Avg	226.00	114.08	
14850.00								**N/A - Done Via Conducted**
14850.00								**Not in Restricted Band**
17325.00								**N/A - Done Via Conducted**
17325.00								**Not in Restricted Band**
19800.00								**No Emission**
19800.00								**Detected**
22275.00								**No Emission**
22275.00								**Detected**
24750.00								**N/A - Done Via Conducted**
24750.00								**Not in Restricted Band**

FCC 15.247
Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel
Transmit Mode - Antenna 1 - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4950.00	40.13	V	73.97	-33.84	Peak	163.25	159.04	
4950.00	29.21	V	53.97	-24.76	Avg	163.25	159.04	
7425.00	46.88	V	73.97	-27.09	Peak	187.75	159.16	
7425.00	37.09	V	53.97	-16.88	Avg	187.75	159.16	
9900.00								**N/A - Done Via Conducted**
9900.00								**Not in Restricted Band**
12375.00	46.60	V	73.97	-27.37	Peak	133.50	206.98	
12375.00	36.02	V	53.97	-17.95	Avg	133.50	206.98	
14850.00								**N/A - Done Via Conducted**
14850.00								**Not in Restricted Band**
17325.00								**N/A - Done Via Conducted**
17325.00								**Not in Restricted Band**
19800.00								**No Emission**
19800.00								**Detected**
22275.00								**No Emission**
22275.00								**Detected**
24750.00								**N/A - Done Via Conducted**
24750.00								**Not in Restricted Band**

FCC 15.247
Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel
Transmit Mode - Antenna 1 - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4950.00	39.81	H	73.97	-34.16	Peak	25.00	190.32	
4950.00	28.98	H	53.97	-24.99	Avg	25.00	190.32	
7425.00	44.77	H	73.97	-29.20	Peak	352.00	127.28	
7425.00	34.52	H	53.97	-19.45	Avg	352.00	127.28	
9900.00								**N/A - Done Via Conducted**
9900.00								**Not in Restricted Band**
12375.00	46.87	H	73.97	-27.10	Peak	29.00	177.49	
12375.00	36.09	H	53.97	-17.88	Avg	29.00	177.49	
14850.00								**N/A - Done Via Conducted**
14850.00								**Not in Restricted Band**
17325.00								**N/A - Done Via Conducted**
17325.00								**Not in Restricted Band**
19800.00								**No Emission**
19800.00								**Detected**
22275.00								**No Emission**
22275.00								**Detected**
24750.00								**N/A - Done Via Conducted**
24750.00								**Not in Restricted Band**

FCC 15.247
Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel
Transmit Mode - Antenna 1 - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4950.00	46.45	H	73.97	-27.52	Peak	262.25	192.23	
4950.00	38.37	H	53.97	-15.60	Avg	262.25	192.23	
7425.00	47.61	H	73.97	-26.36	Peak	242.75	111.88	
7425.00	37.95	H	53.97	-16.02	Avg	242.75	111.88	
9900.00								**N/A - Done Via Conducted**
9900.00								**Not in Restricted Band**
12375.00	47.23	H	73.97	-26.74	Peak	7.50	144.83	
12375.00	36.30	H	53.97	-17.67	Avg	7.50	144.83	
14850.00								**N/A - Done Via Conducted**
14850.00								**Not in Restricted Band**
17325.00								**N/A - Done Via Conducted**
17325.00								**Not in Restricted Band**
19800.00								**No Emission**
19800.00								**Detected**
22275.00								**No Emission**
22275.00								**Detected**
24750.00								**N/A - Done Via Conducted**
24750.00								**Not in Restricted Band**

FCC 15.247
Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel
Transmit Mode - Antenna 1 - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4950.00	39.79	H	73.97	-34.18	Peak	177.50	127.28	
4950.00	28.79	H	53.97	-25.18	Avg	177.50	127.28	
7425.00	44.49	H	73.97	-29.48	Peak	231.50	238.56	
7425.00	33.52	H	53.97	-20.45	Avg	231.50	238.56	
9900.00								N/A - Done Via Conducted
9900.00								Not in Restricted Band
12375.00	47.06	H	73.97	-26.91	Peak	64.75	190.86	
12375.00	36.53	H	53.97	-17.44	Avg	64.75	190.86	
14850.00								N/A - Done Via Conducted
14850.00								Not in Restricted Band
17325.00								N/A - Done Via Conducted
17325.00								Not in Restricted Band
19800.00								No Emission
19800.00								Detected
22275.00								No Emission
22275.00								Detected
24750.00								N/A - Done Via Conducted
24750.00								Not in Restricted Band

FCC 15.247

Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

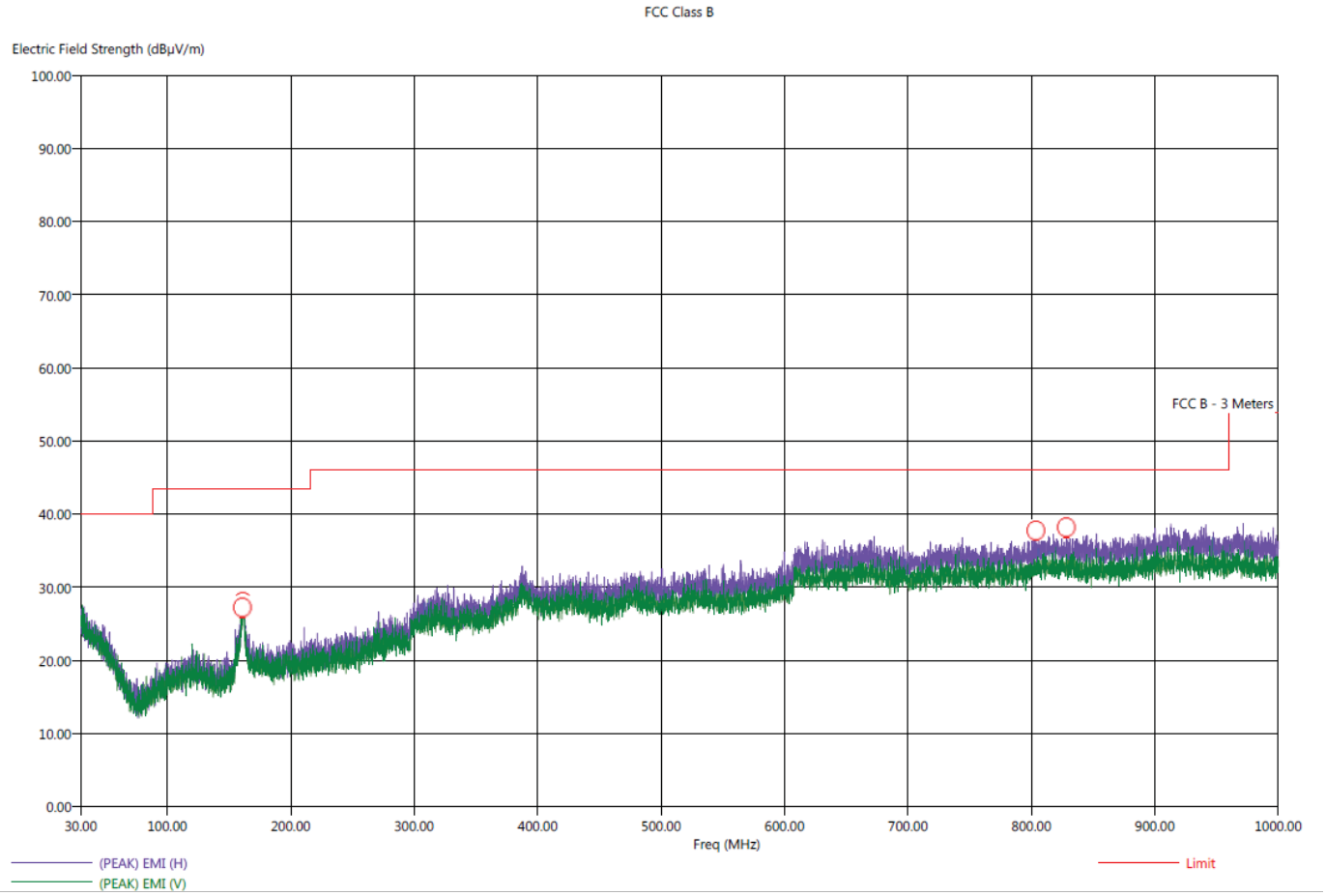
Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Non Harmonic Emissions from the Tx and Digital Portion - 9 kHz to 30 MHz
Non Harmonic Emissions from the Tx and Digital Portion - 1 GHz to 25 GHz

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
								No Emissions Detected
								from 9 kHz to 30 MHz
								for the digital portion
								of the EUT
								No Emissions Detected
								from 9 kHz to 30 MHz
								for the Non-Harmonic Emissions
								of the Transmitter for the EUT
								No Emissions Detected
								from 1 GHz to 25 GHz
								for the digital portion
								of the EUT
								No Emissions Detected
								from 1 GHz to 25 GHz
								for the Non-Harmonic Emissions
								of the Transmitter for the EUT
								Investigated in the X-Axis,
								Y-Axis, and Z-Axis

Title: Pre-Scan - FCC Class B
File: 1 - Pre Scan - X-Axis - FCC Class B - Ant 2 - 30 MHz to 1000 MHz - 05-08-2020.set
Operator: Kyle Fujimoto
EUT Type: Comcast XH Keypad ZB3.0 2020
EUT Condition: The EUT was transmitting continuously at 2440 MHz
Company: Universal Electronics, Inc.
P/N: H34450BA00-00007
S/N: N/A
X-Axis - Antenna 2

5/8/2020 9:03:43 AM
Sequence: Preliminary Scan



Title: Final Scan - FCC Class B
File: 1 - Final Scan - FCC Class B - Ant 2 - 30 MHz to 1000 MHz - 05-08-2020.set
Operator: Kyle Fujimoto
EUT Type: Comcast XH Keypad ZB 3.0 2020
EUT Condition: The EUT was trasmitting continuously at 2440 MHz
Company: Universal Electronics, Inc.
P/N: H34450BA00-00007
S/N: N/A
X-Axis - Antenna 2

5/8/2020 9:13:38 AM
Sequence: Final Measurements

FCC Class B

Freq (MHz)	Pol	(PEAK) EMI (dBµV/m)	(QP) EMI (dBµV/m)	(PEAK) Margin (dB)	(QP) Margin (dB)	Limit (dBµV/m)	Transducer (dB)	Cable (dB)	Ttbl Aql (deg)	Twr Ht (cm)
160.90	V	30.24	24.80	-13.26	-18.70	43.50	21.61	0.88	277.00	174.62
161.20	V	30.58	25.18	-12.92	-18.32	43.50	22.00	0.88	46.50	222.56
161.90	H	30.07	25.22	-13.43	-18.28	43.50	22.08	0.88	86.00	207.88
162.30	H	30.77	24.65	-12.73	-18.85	43.50	21.51	0.88	349.00	365.73
803.60	H	37.29	32.45	-8.71	-13.55	46.00	26.49	2.31	157.00	111.28
828.40	H	37.76	32.87	-8.24	-13.13	46.00	27.10	2.30	345.25	254.56

FCC 15.247
Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel
Transmit Mode - Antenna 2 - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4810.00	44.78	V	73.97	-29.19	Peak	43.50	127.16	
4810.00	35.19	V	53.97	-18.78	Avg	43.50	127.16	
7215.00								N/A - Done Via Conducted
7215.00								Not in Restricted Band
9620.00								N/A - Done Via Conducted
9620.00								Not in Restricted Band
12025.00	46.55	V	73.97	-27.42	Peak	286.00	199.76	
12025.00	35.95	V	53.97	-18.02	Avg	286.00	199.76	
14430.00								N/A - Done Via Conducted
14430.00								Not in Restricted Band
16835.00								N/A - Done Via Conducted
16835.00								Not in Restricted Band
19240.00								No Emission
19240.00								Detected
21645.00								N/A - Done Via Conducted
21645.00								Not in Restricted Band
24050.00								N/A - Done Via Conducted
24050.00								Not in Restricted Band

FCC 15.247
Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel
Transmit Mode - Antenna 2 - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4810.00	45.63	V	73.97	-28.34	Peak	125.25	111.40	
4810.00	37.35	V	53.97	-16.62	Avg	125.25	111.40	
7215.00								N/A - Done Via Conducted
7215.00								Not in Restricted Band
9620.00								N/A - Done Via Conducted
9620.00								Not in Restricted Band
12025.00	44.45	V	73.97	-29.52	Peak	140.25	246.02	
12025.00	33.42	V	53.97	-20.55	Avg	140.25	246.02	
14430.00								N/A - Done Via Conducted
14430.00								Not in Restricted Band
16835.00								N/A - Done Via Conducted
16835.00								Not in Restricted Band
19240.00								No Emission
19240.00								Detected
21645.00								N/A - Done Via Conducted
21645.00								Not in Restricted Band
24050.00								N/A - Done Via Conducted
24050.00								Not in Restricted Band

FCC 15.247
Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel
Transmit Mode - Antenna 2 - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4810.00	39.34	V	73.97	-34.63	Peak	283.75	158.92	
4810.00	28.61	V	53.97	-25.36	Avg	283.75	158.92	
7215.00								**N/A - Done Via Conducted**
7215.00								**Not in Restricted Band**
9620.00								**N/A - Done Via Conducted**
9620.00								**Not in Restricted Band**
12025.00	46.92	V	73.97	-27.05	Peak	338.05	222.44	
12025.00	36.05	V	53.97	-17.92	Avg	338.05	222.44	
14430.00								**N/A - Done Via Conducted**
14430.00								**Not in Restricted Band**
16835.00								**N/A - Done Via Conducted**
16835.00								**Not in Restricted Band**
19240.00								**No Emission**
19240.00								**Detected**
21645.00								**N/A - Done Via Conducted**
21645.00								**Not in Restricted Band**
24050.00								**N/A - Done Via Conducted**
24050.00								**Not in Restricted Band**

FCC 15.247
Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel
Transmit Mode - Antenna 2 - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4810.00	43.92	H	73.97	-30.05	Peak	166.25	143.04	
4810.00	34.85	H	53.97	-19.12	Avg	166.25	143.04	
7215.00								N/A - Done Via Conducted
7215.00								Not in Restricted Band
9620.00								N/A - Done Via Conducted
9620.00								Not in Restricted Band
12025.00	46.61	H	73.97	-27.36	Peak	237.50	249.91	
12025.00	35.89	H	53.97	-18.08	Avg	237.50	249.91	
14430.00								N/A - Done Via Conducted
14430.00								Not in Restricted Band
16835.00								N/A - Done Via Conducted
16835.00								Not in Restricted Band
19240.00								No Emission
19240.00								Detected
21645.00								N/A - Done Via Conducted
21645.00								Not in Restricted Band
24050.00								N/A - Done Via Conducted
24050.00								Not in Restricted Band

FCC 15.247
Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel
Transmit Mode - Antenna 2 - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4810.00	45.05	H	73.97	-28.92	Peak	86.25	206.86	
4810.00	36.36	H	53.97	-17.61	Avg	86.25	206.86	
7215.00								N/A - Done Via Conducted
7215.00								Not in Restricted Band
9620.00								N/A - Done Via Conducted
9620.00								Not in Restricted Band
12025.00	47.17	H	73.97	-26.80	Peak	341.00	127.10	
12025.00	35.83	H	53.97	-18.14	Avg	341.00	127.10	
14430.00								N/A - Done Via Conducted
14430.00								Not in Restricted Band
16835.00								N/A - Done Via Conducted
16835.00								Not in Restricted Band
19240.00								No Emission
19240.00								Detected
21645.00								N/A - Done Via Conducted
21645.00								Not in Restricted Band
24050.00								N/A - Done Via Conducted
24050.00								Not in Restricted Band

FCC 15.247
Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel
Transmit Mode - Antenna 2 - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4810.00	45.15	H	73.97	-28.82	Peak	38.75	146.14	
4810.00	37.01	H	53.97	-16.96	Avg	38.75	146.14	
7215.00								N/A - Done Via Conducted
7215.00								Not in Restricted Band
9620.00								N/A - Done Via Conducted
9620.00								Not in Restricted Band
12025.00	47.16	H	73.97	-26.81	Peak	214.50	205.13	
12025.00	35.98	H	53.97	-17.99	Avg	214.50	205.13	
14430.00								N/A - Done Via Conducted
14430.00								Not in Restricted Band
16835.00								N/A - Done Via Conducted
16835.00								Not in Restricted Band
19240.00								No Emission
19240.00								Detected
21645.00								N/A - Done Via Conducted
21645.00								Not in Restricted Band
24050.00								N/A - Done Via Conducted
24050.00								Not in Restricted Band

FCC 15.247
Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Middle Channel
Transmit Mode - Antenna 2 - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	49.40	V	73.97	-24.57	Peak	49.50	111.16	
4880.00	42.53	V	53.97	-11.44	Avg	49.50	111.16	
7320.00	45.57	V	73.97	-28.40	Peak	42.00	158.14	
7320.00	34.55	V	53.97	-19.42	Avg	42.00	158.14	
9760.00								N/A - Done Via Conducted
9760.00								Not in Restricted Band
12200.00	46.57	V	73.97	-27.40	Peak	173.75	159.10	
12200.00	35.74	V	53.97	-18.23	Avg	173.75	159.10	
14640.00								N/A - Done Via Conducted
14640.00								Not in Restricted Band
17080.00								N/A - Done Via Conducted
17080.00								Not in Restricted Band
19520.00								No Emission
19520.00								Detected
21960.00								N/A - Done Via Conducted
21960.00								Not in Restricted Band
24400.00								N/A - Done Via Conducted
24400.00								Not in Restricted Band

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Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Middle Channel
Transmit Mode - Antenna 2 - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	46.38	V	73.97	-27.59	Peak	187.50	127.46	
4880.00	38.17	V	53.97	-15.80	Avg	187.50	127.46	
7320.00	43.70	V	73.97	-30.27	Peak	287.75	174.92	
7320.00	33.26	V	53.97	-20.71	Avg	287.75	174.92	
9760.00								**N/A - Done Via Conducted**
9760.00								**Not in Restricted Band**
12200.00	46.84	V	73.97	-27.13	Peak	51.25	222.20	
12200.00	35.79	V	53.97	-18.18	Avg	51.25	222.20	
14640.00								**N/A - Done Via Conducted**
14640.00								**Not in Restricted Band**
17080.00								**N/A - Done Via Conducted**
17080.00								**Not in Restricted Band**
19520.00								**No Emission**
19520.00								**Detected**
21960.00								**N/A - Done Via Conducted**
21960.00								**Not in Restricted Band**
24400.00								**N/A - Done Via Conducted**
24400.00								**Not in Restricted Band**

FCC 15.247
Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
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Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Middle Channel
Transmit Mode - Antenna 2 - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	46.37	V	73.97	-27.60	Peak	308.00	249.79	
4880.00	38.91	V	53.97	-15.06	Avg	308.00	249.79	
7320.00	43.91	V	73.97	-30.06	Peak	221.50	111.16	
7320.00	33.30	V	53.97	-20.67	Avg	221.50	111.16	
9760.00								N/A - Done Via Conducted
9760.00								Not in Restricted Band
12200.00	47.16	V	73.97	-26.81	Peak	116.00	249.98	
12200.00	35.70	V	53.97	-18.27	Avg	116.00	249.98	
14640.00								N/A - Done Via Conducted
14640.00								Not in Restricted Band
17080.00								N/A - Done Via Conducted
17080.00								Not in Restricted Band
19520.00								No Emission
19520.00								Detected
21960.00								N/A - Done Via Conducted
21960.00								Not in Restricted Band
24400.00								N/A - Done Via Conducted
24400.00								Not in Restricted Band

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Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Middle Channel
Transmit Mode - Antenna 2 - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	44.70	H	73.97	-29.27	Peak	112.50	143.10	
4880.00	35.36	H	53.97	-18.61	Avg	112.50	143.10	
7320.00	43.67	H	73.97	-30.30	Peak	248.00	208.41	
7320.00	33.02	H	53.97	-20.95	Avg	248.00	208.41	
9760.00								N/A - Done Via Conducted
9760.00								Not in Restricted Band
12200.00	46.35	H	73.97	-27.62	Peak	213.75	237.85	
12200.00	35.61	H	53.97	-18.36	Avg	213.75	237.85	
14640.00								N/A - Done Via Conducted
14640.00								Not in Restricted Band
17080.00								N/A - Done Via Conducted
17080.00								Not in Restricted Band
19520.00								No Emission
19520.00								Detected
21960.00								N/A - Done Via Conducted
21960.00								Not in Restricted Band
24400.00								N/A - Done Via Conducted
24400.00								Not in Restricted Band

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Universal Electronics, Inc.
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Lab: D
Tested By: Kyle Fujimoto

Harmonics - Middle Channel
Transmit Mode - Antenna 2 - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	46.06	H	73.97	-27.91	Peak	8.50	142.98	
4880.00	37.70	H	53.97	-16.27	Avg	8.50	142.98	
7320.00	44.92	H	73.97	-29.05	Peak	101.75	127.04	
7320.00	34.24	H	53.97	-19.73	Avg	101.75	127.04	
9760.00								**N/A - Done Via Conducted**
9760.00								**Not in Restricted Band**
12200.00	46.44	H	73.97	-27.53	Peak	122.75	174.80	
12200.00	35.46	H	53.97	-18.51	Avg	122.75	174.80	
14640.00								**N/A - Done Via Conducted**
14640.00								**Not in Restricted Band**
17080.00								**N/A - Done Via Conducted**
17080.00								**Not in Restricted Band**
19520.00								**No Emission**
19520.00								**Detected**
21960.00								**N/A - Done Via Conducted**
21960.00								**Not in Restricted Band**
24400.00								**N/A - Done Via Conducted**
24400.00								**Not in Restricted Band**

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Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Middle Channel
Transmit Mode - Antenna 2 - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	45.30	H	73.97	-28.67	Peak	286.50	174.86	
4880.00	37.60	H	53.97	-16.37	Avg	286.50	174.86	
7320.00	44.52	H	73.97	-29.45	Peak	100.00	158.86	
7320.00	33.10	H	53.97	-20.87	Avg	100.00	158.86	
9760.00								**N/A - Done Via Conducted**
9760.00								**Not in Restricted Band**
12200.00	46.14	H	73.97	-27.83	Peak	315.00	238.80	
12200.00	35.57	H	53.97	-18.40	Avg	315.00	238.80	
14640.00								**N/A - Done Via Conducted**
14640.00								**Not in Restricted Band**
17080.00								**N/A - Done Via Conducted**
17080.00								**Not in Restricted Band**
19520.00								**No Emission**
19520.00								**Detected**
21960.00								**N/A - Done Via Conducted**
21960.00								**Not in Restricted Band**
24400.00								**N/A - Done Via Conducted**
24400.00								**Not in Restricted Band**

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Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel
Transmit Mode - Antenna 2 - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4950.00	42.40	V	73.97	-31.57	Peak	88.50	173.91	
4950.00	32.79	V	53.97	-21.18	Avg	88.50	173.91	
7425.00	44.48	V	73.97	-29.49	Peak	70.25	127.40	
7425.00	33.84	V	53.97	-20.13	Avg	70.25	127.40	
9900.00								**N/A - Done Via Conducted**
9900.00								**Not in Restricted Band**
12375.00	46.63	V	73.97	-27.34	Peak	151.25	206.80	
12375.00	35.83	V	53.97	-18.14	Avg	151.25	206.80	
14850.00								**N/A - Done Via Conducted**
14850.00								**Not in Restricted Band**
17325.00								**N/A - Done Via Conducted**
17325.00								**Not in Restricted Band**
19800.00								**No Emission**
19800.00								**Detected**
22275.00								**No Emission**
22275.00								**Detected**
24750.00								**N/A - Done Via Conducted**
24750.00								**Not in Restricted Band**

FCC 15.247
Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel
Transmit Mode - Antenna 2 - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4950.00	44.94	V	73.97	-29.03	Peak	187.25	174.92	
4950.00	35.72	V	53.97	-18.25	Avg	187.25	174.92	
7425.00	47.67	V	73.97	-26.30	Peak	213.25	174.92	
7425.00	37.58	V	53.97	-16.39	Avg	213.25	174.92	
9900.00								**N/A - Done Via Conducted**
9900.00								**Not in Restricted Band**
12375.00	47.24	V	73.97	-26.73	Peak	123.75	190.68	
12375.00	35.88	V	53.97	-18.09	Avg	123.75	190.68	
14850.00								**N/A - Done Via Conducted**
14850.00								**Not in Restricted Band**
17325.00								**N/A - Done Via Conducted**
17325.00								**Not in Restricted Band**
19800.00								**No Emission**
19800.00								**Detected**
22275.00								**No Emission**
22275.00								**Detected**
24750.00								**N/A - Done Via Conducted**
24750.00								**Not in Restricted Band**

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Harmonics - High Channel
Transmit Mode - Antenna 2 - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4950.00	44.42	V	73.97	-29.55	Peak	225.00	143.22	
4950.00	35.20	V	53.97	-18.77	Avg	225.00	143.22	
7425.00	47.36	V	73.97	-26.61	Peak	249.50	111.40	
7425.00	36.89	V	53.97	-17.08	Avg	249.50	111.40	
9900.00								**N/A - Done Via Conducted**
9900.00								**Not in Restricted Band**
12375.00	47.27	V	73.97	-26.70	Peak	110.25	249.14	
12375.00	35.79	V	53.97	-18.18	Avg	110.25	249.14	
14850.00								**N/A - Done Via Conducted**
14850.00								**Not in Restricted Band**
17325.00								**N/A - Done Via Conducted**
17325.00								**Not in Restricted Band**
19800.00								**No Emission**
19800.00								**Detected**
22275.00								**No Emission**
22275.00								**Detected**
24750.00								**N/A - Done Via Conducted**
24750.00								**Not in Restricted Band**

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Tested By: Kyle Fujimoto

Harmonics - High Channel
Transmit Mode - Antenna 2 - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4950.00	46.73	H	73.97	-27.24	Peak	231.25	143.34	
4950.00	39.83	H	53.97	-14.14	Avg	231.25	143.34	
7425.00	47.81	H	73.97	-26.16	Peak	195.00	111.10	
7425.00	38.08	H	53.97	-15.89	Avg	195.00	111.10	
9900.00								**N/A - Done Via Conducted**
9900.00								**Not in Restricted Band**
12375.00	46.73	H	73.97	-27.24	Peak	18.50	143.22	
12375.00	35.81	H	53.97	-18.16	Avg	18.50	143.22	
14850.00								**N/A - Done Via Conducted**
14850.00								**Not in Restricted Band**
17325.00								**N/A - Done Via Conducted**
17325.00								**Not in Restricted Band**
19800.00								**No Emission**
19800.00								**Detected**
22275.00								**No Emission**
22275.00								**Detected**
24750.00								**N/A - Done Via Conducted**
24750.00								**Not in Restricted Band**

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Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel
Transmit Mode - Antenna 2 - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4950.00	40.44	H	73.97	-33.53	Peak	11.75	127.16	
4950.00	28.61	H	53.97	-25.36	Avg	11.75	127.16	
7425.00	44.64	H	73.97	-29.33	Peak	99.25	159.04	
7425.00	33.67	H	53.97	-20.30	Avg	99.25	159.04	
9900.00								**N/A - Done Via Conducted**
9900.00								**Not in Restricted Band**
12375.00	46.59	H	73.97	-27.38	Peak	131.25	127.16	
12375.00	35.88	H	53.97	-18.09	Avg	131.25	127.16	
14850.00								**N/A - Done Via Conducted**
14850.00								**Not in Restricted Band**
17325.00								**N/A - Done Via Conducted**
17325.00								**Not in Restricted Band**
19800.00								**No Emission**
19800.00								**Detected**
22275.00								**No Emission**
22275.00								**Detected**
24750.00								**N/A - Done Via Conducted**
24750.00								**Not in Restricted Band**

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Lab: D
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Harmonics - High Channel
Transmit Mode - Antenna 2 - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4950.00	40.61	H	73.97	-33.36	Peak	164.75	111.40	
4950.00	28.66	H	53.97	-25.31	Avg	164.75	111.40	
7425.00	47.16	H	73.97	-26.81	Peak	214.75	111.40	
7425.00	37.41	H	53.97	-16.56	Avg	214.75	111.40	
9900.00								**N/A - Done Via Conducted**
9900.00								**Not in Restricted Band**
12375.00	47.00	H	73.97	-26.97	Peak	240.00	143.28	
12375.00	35.71	H	53.97	-18.26	Avg	240.00	143.28	
14850.00								**N/A - Done Via Conducted**
14850.00								**Not in Restricted Band**
17325.00								**N/A - Done Via Conducted**
17325.00								**Not in Restricted Band**
19800.00								**No Emission**
19800.00								**Detected**
22275.00								**No Emission**
22275.00								**Detected**
24750.00								**N/A - Done Via Conducted**
24750.00								**Not in Restricted Band**

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Universal Electronics, Inc.
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P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Non Harmonic Emissions from the Tx and Digital Portion - 9 kHz to 30 MHz
Non Harmonic Emissions from the Tx and Digital Portion - 1 GHz to 25 GHz

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
								No Emissions Detected
								from 9 kHz to 30 MHz
								for the digital portion
								of the EUT
								No Emissions Detected
								from 9 kHz to 30 MHz
								for the Non-Harmonic Emissions
								of the Transmitter for the EUT
								No Emissions Detected
								from 1 GHz to 25 GHz
								for the digital portion
								of the EUT
								No Emissions Detected
								from 1 GHz to 25 GHz
								for the Non-Harmonic Emissions
								of the Transmitter for the EUT
								Investigated in the X-Axis,
								Y-Axis, and Z-Axis

BAND EDGES

DATA SHEETS

FCC 15.247

Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Band Edges - Antenna 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2405.00	106.02	H	--	--	Peak	74.25	119.91	**Fundamental - Low Ch.**
2405.00	101.94	H	--	--	Avg	74.25	119.94	**X-Axis - Worst Case**
2390.00	44.50	H	73.97	-29.48	Peak	74.25	119.94	**Band Edge**
2390.00	30.21	H	53.97	-23.76	Avg	74.25	119.94	**X-Axis - Worst Case**
2405.00	105.10	V	--	--	Peak	310.25	143.64	**Fundamental - Low Ch.**
2405.00	101.16	V	--	--	Avg	310.25	143.64	**Z-Axis - Worst Case**
2390.00	39.32	V	73.97	-34.65	Peak	310.25	143.64	**Band Edge**
2390.00	30.20	V	53.97	-23.77	Avg	310.25	143.64	**Z-Axis - Worst Case**

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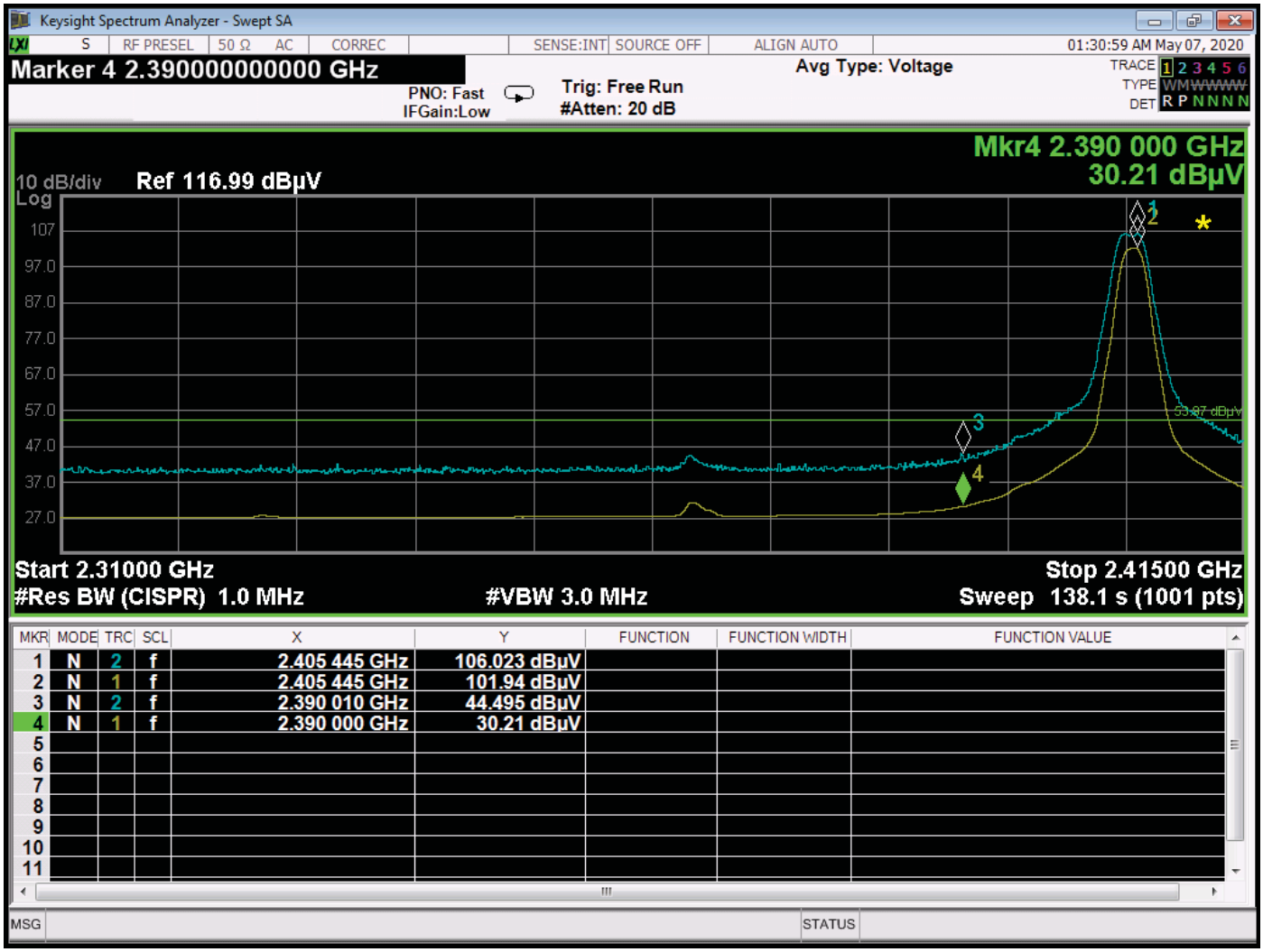
Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

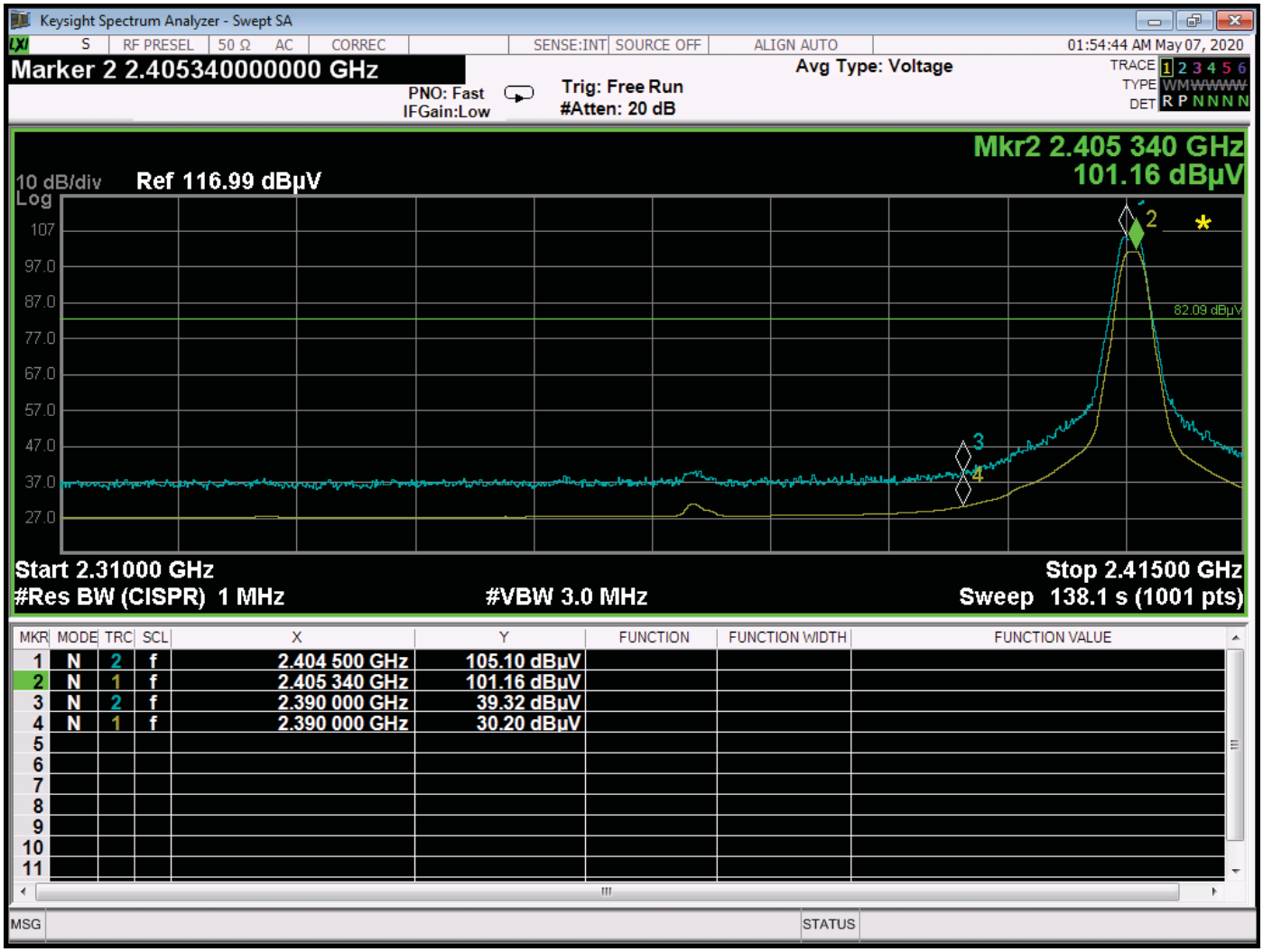
Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Band Edges - Antenna 1

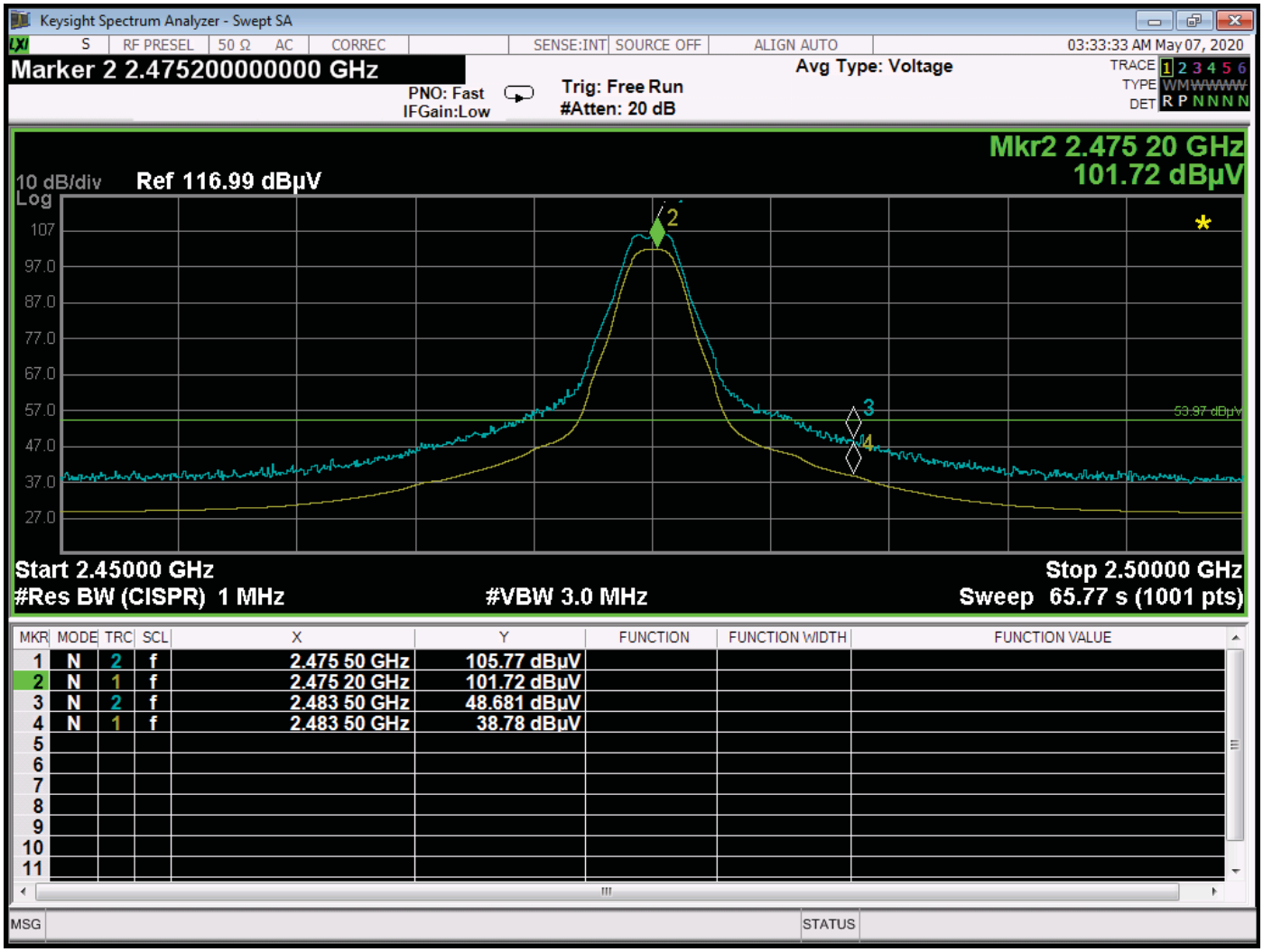
Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2475.00	105.77	H	--	--	Peak	23.75	112.41	**Fundamental - High Ch.**
2475.00	101.72	H	--	--	Avg	23.75	112.41	**X-Axis - Worst Case**
2483.50	48.68	H	73.97	-25.29	Peak	23.75	112.41	**Band Edge**
2483.50	38.78	H	53.97	-15.19	Avg	23.75	112.41	**X-Axis - Worst Case**
2475.00	105.70	V	--	--	Peak	308.50	138.80	**Fundamental - High Ch.**
2475.00	101.70	V	--	--	Avg	308.50	138.80	**Z-Axis - Worst Case**
2483.50	48.70	V	73.97	-25.27	Peak	308.50	138.80	**Band Edge**
2483.50	38.66	V	53.97	-15.31	Avg	308.50	138.80	**Z-Axis - Worst Case**



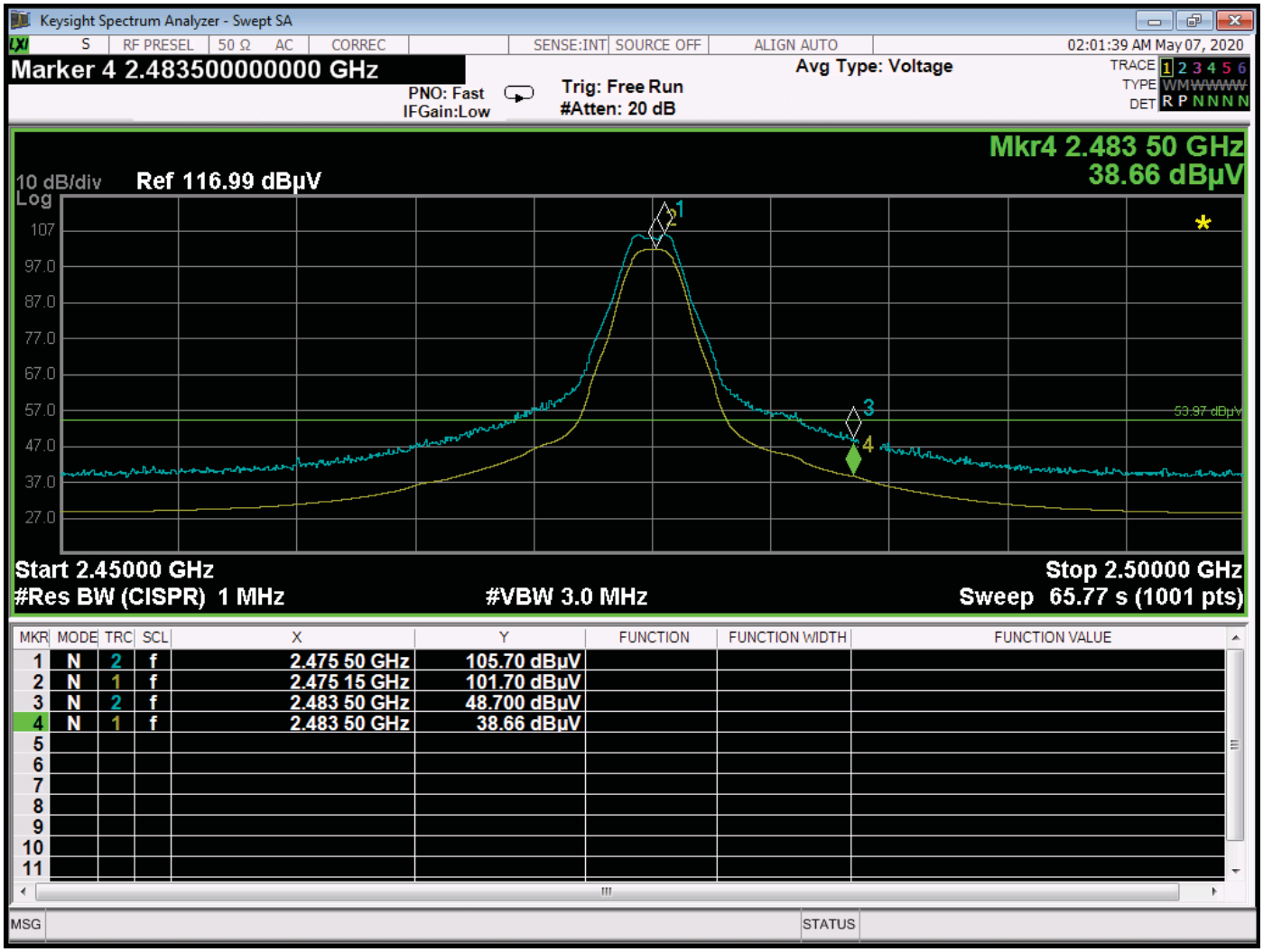
Band Edge – Low Channel – Horizontal Polarization – Antenna 1 – X-Axis – RMS Average



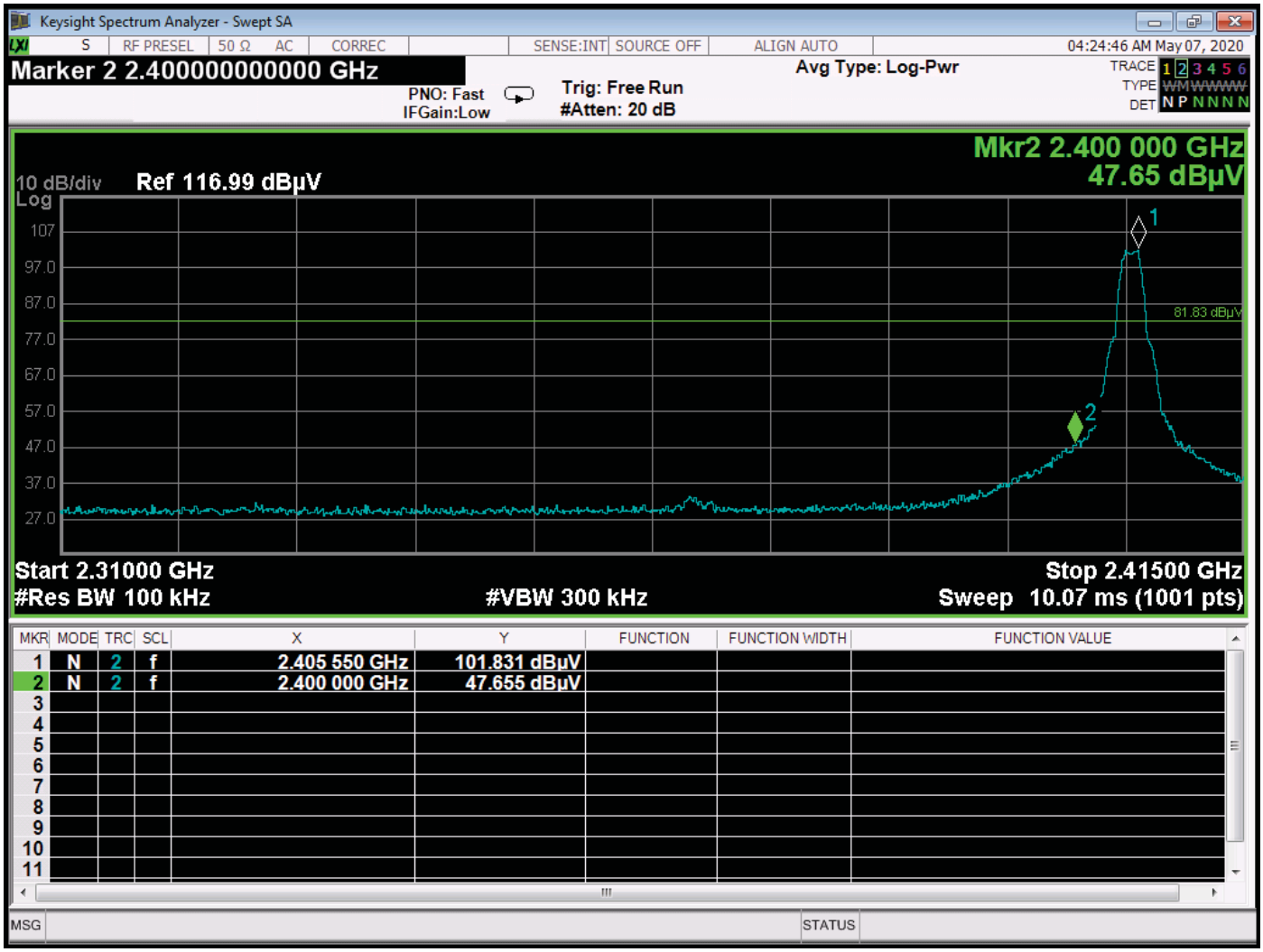
Band Edge – Low Channel – Vertical Polarization – Antenna 1 – Z-Axis – RMS Average



Band Edge – High Channel – Horizontal Polarization – Antenna 1 – X-Axis – RMS Average



Band Edge – High Channel – Vertical Polarization – Antenna 1 – Z-Axis – RMS Average



Band Edge – Low Channel – at 2400 MHz – Antenna 1

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Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Band Edges - Antenna 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2405.00	105.68	H	--	--	Peak	262.50	154.44	**Fundamental - Low Ch.**
2405.00	101.78	H	--	--	Avg	262.50	154.44	**X-Axis - Worst Case**
2390.00	41.72	H	73.97	-32.25	Peak	262.50	154.44	**Band Edge**
2390.00	30.30	H	53.97	-23.67	Avg	262.50	154.44	**X-Axis - Worst Case**
2405.00	105.34	V	--	--	Peak	68.75	160.41	**Fundamental - Low Ch.**
2405.00	101.48	V	--	--	Avg	68.75	160.41	**Z-Axis - Worst Case**
2390.00	39.38	V	73.97	-34.59	Peak	68.75	160.41	**Band Edge**
2390.00	30.32	V	53.97	-23.65	Avg	68.75	160.41	**Z-Axis - Worst Case**

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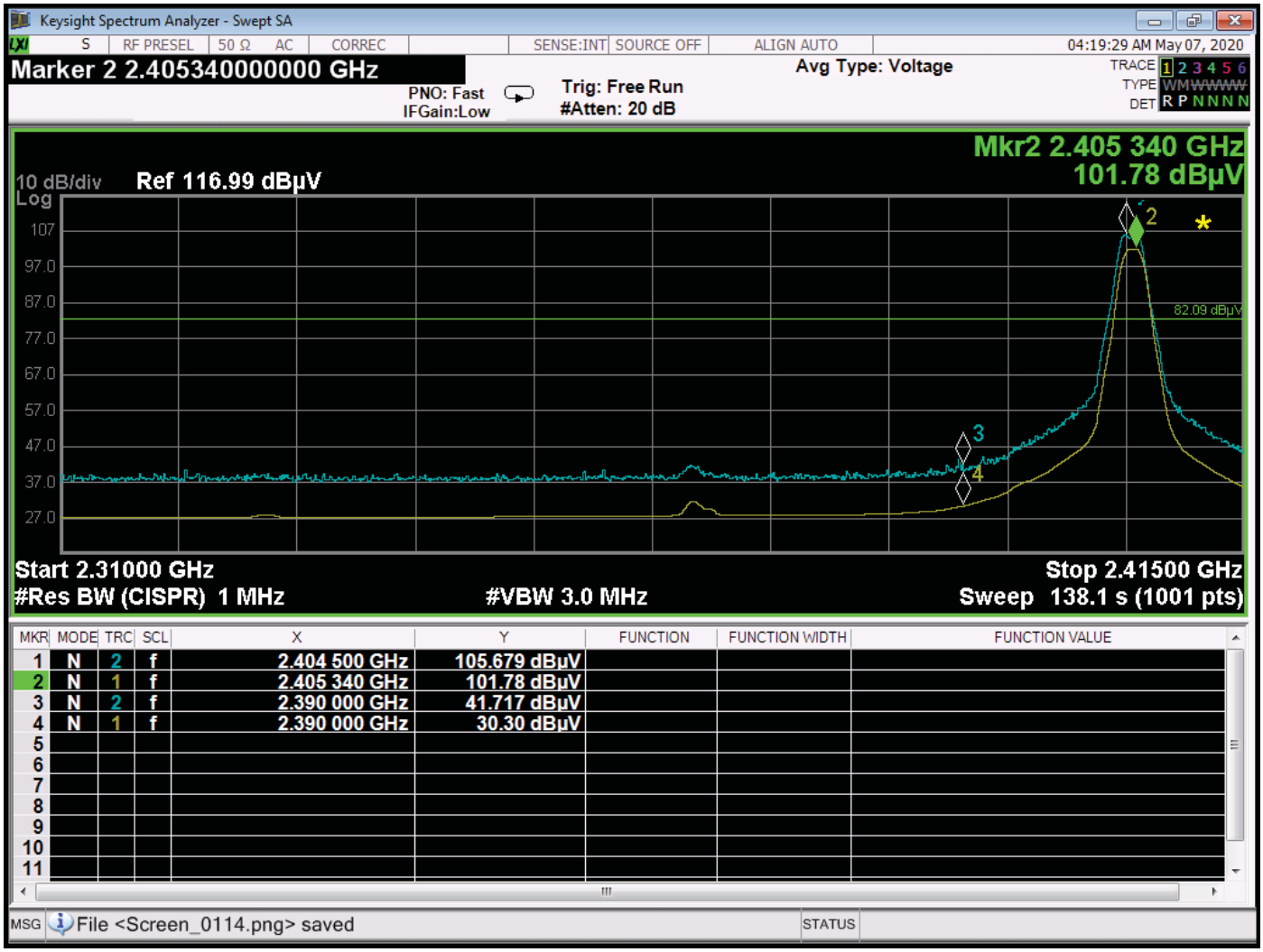
Universal Electronics, Inc.
Comcast XH Keypad ZB3.0 2020
P/N: H34450BA00-00007

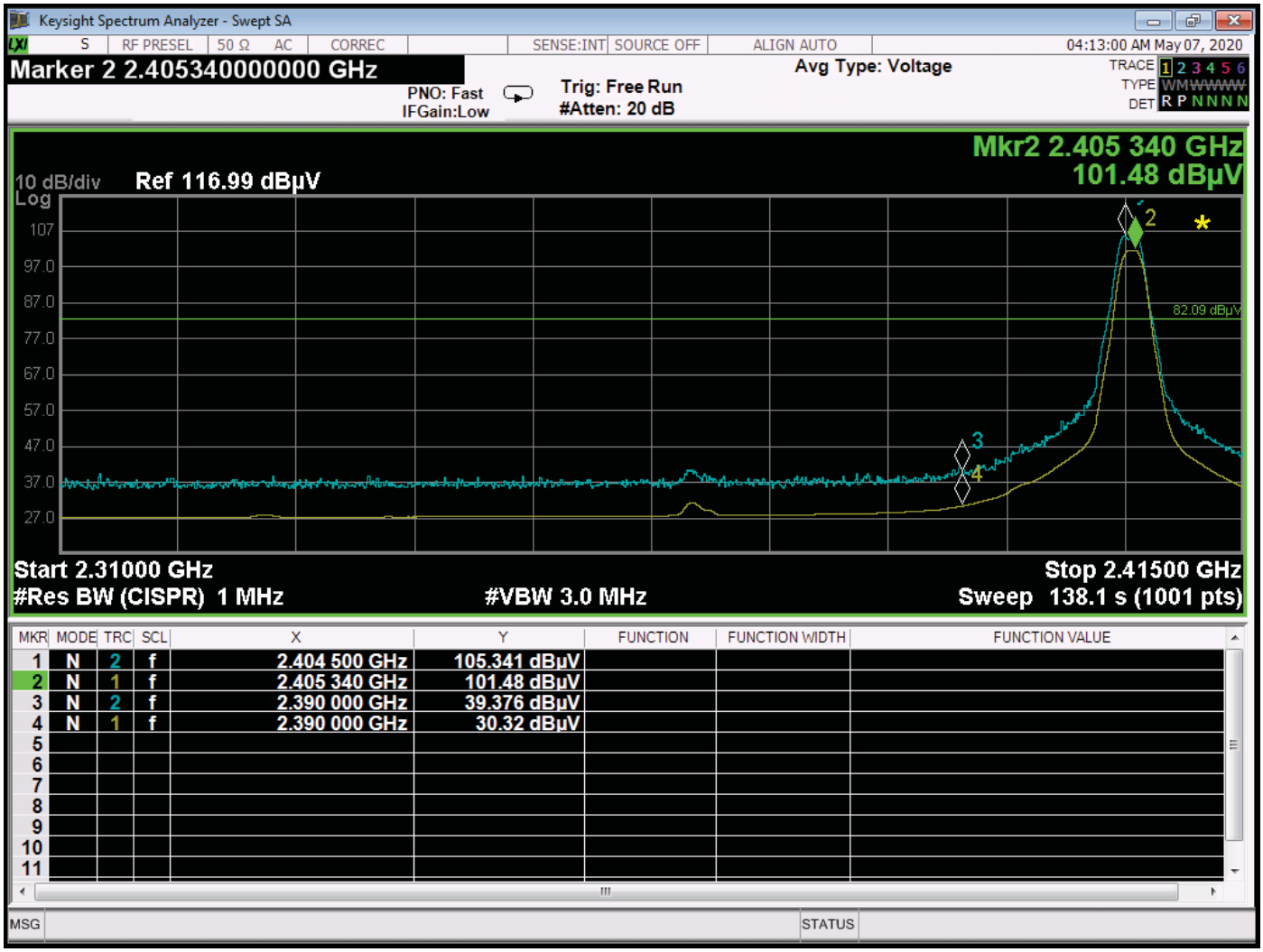
Date: 05/06/2020
Lab: D
Tested By: Kyle Fujimoto

Band Edges - Antenna 2

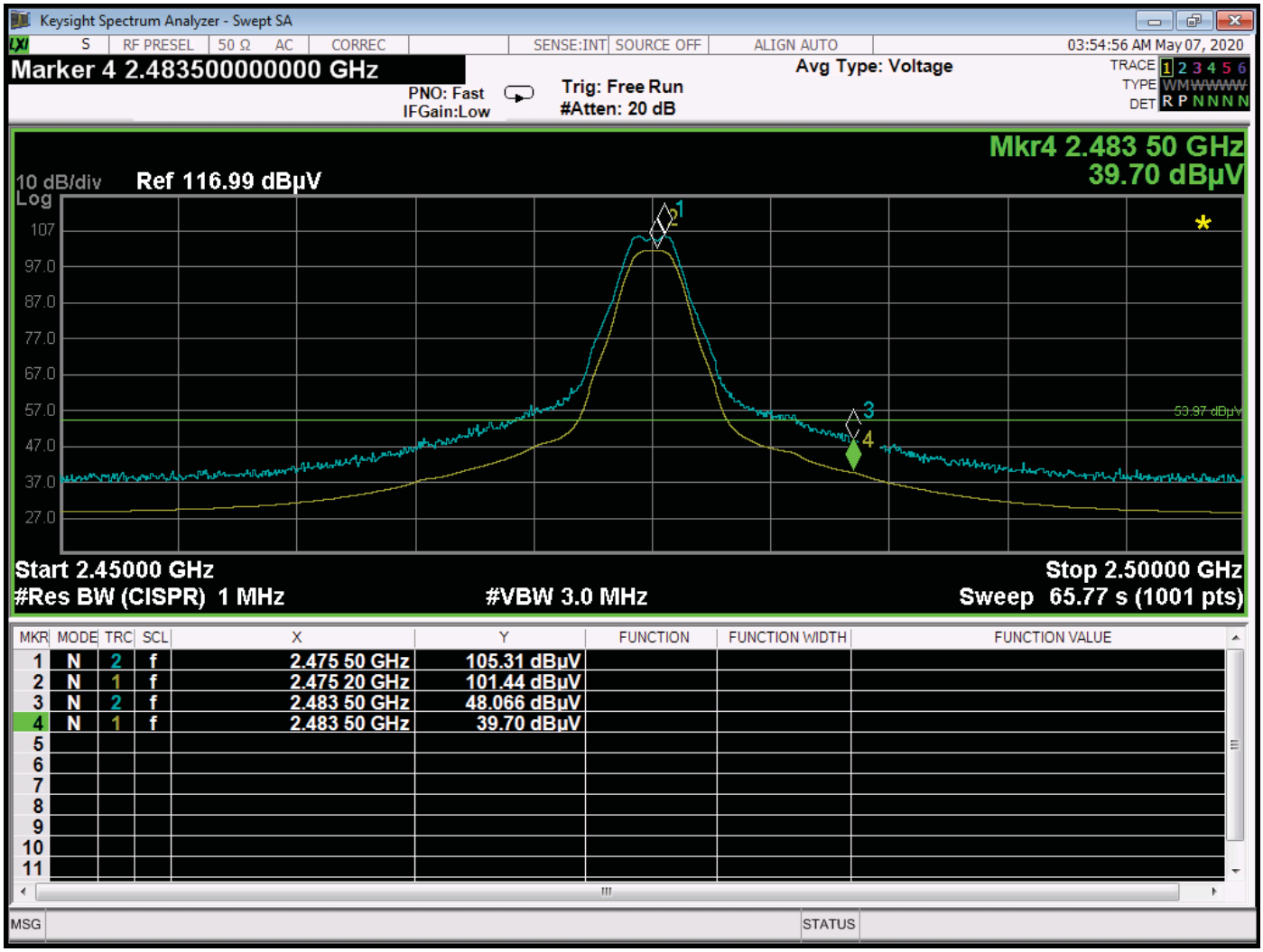
Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2475.00	105.31	H	--	--	Peak	326.75	163.82	**Fundamental - High Ch.**
2475.00	101.44	H	--	--	Avg	326.75	163.82	**X-Axis - Worst Case**
2483.50	48.07	H	73.97	-25.90	Peak	326.75	163.82	**Band Edge**
2483.50	39.70	H	53.97	-14.27	Avg	326.75	163.82	**X-Axis - Worst Case**
2475.00	105.85	V	--	--	Peak	319.75	173.61	**Fundamental - High Ch.**
2475.00	101.86	V	--	--	Avg	319.75	173.61	**Y-Axis - Worst Case**
2483.50	49.08	V	73.97	-24.89	Peak	319.75	173.61	**Band Edge**
2483.50	39.03	V	53.97	-14.94	Avg	319.75	173.61	**Y-Axis - Worst Case**



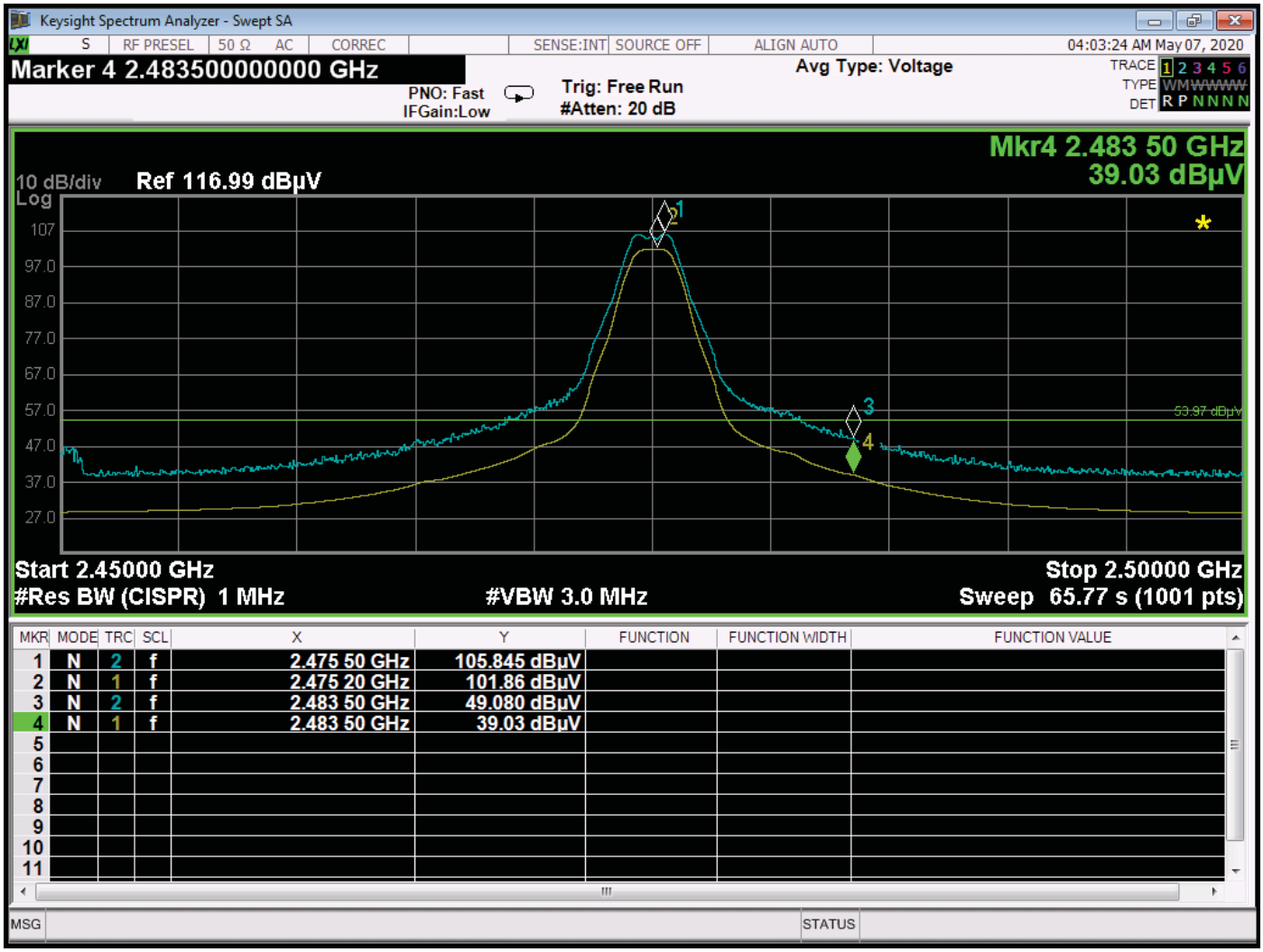
Band Edge – Low Channel – Horizontal Polarization – Antenna 2 – X-Axis – RMS Average



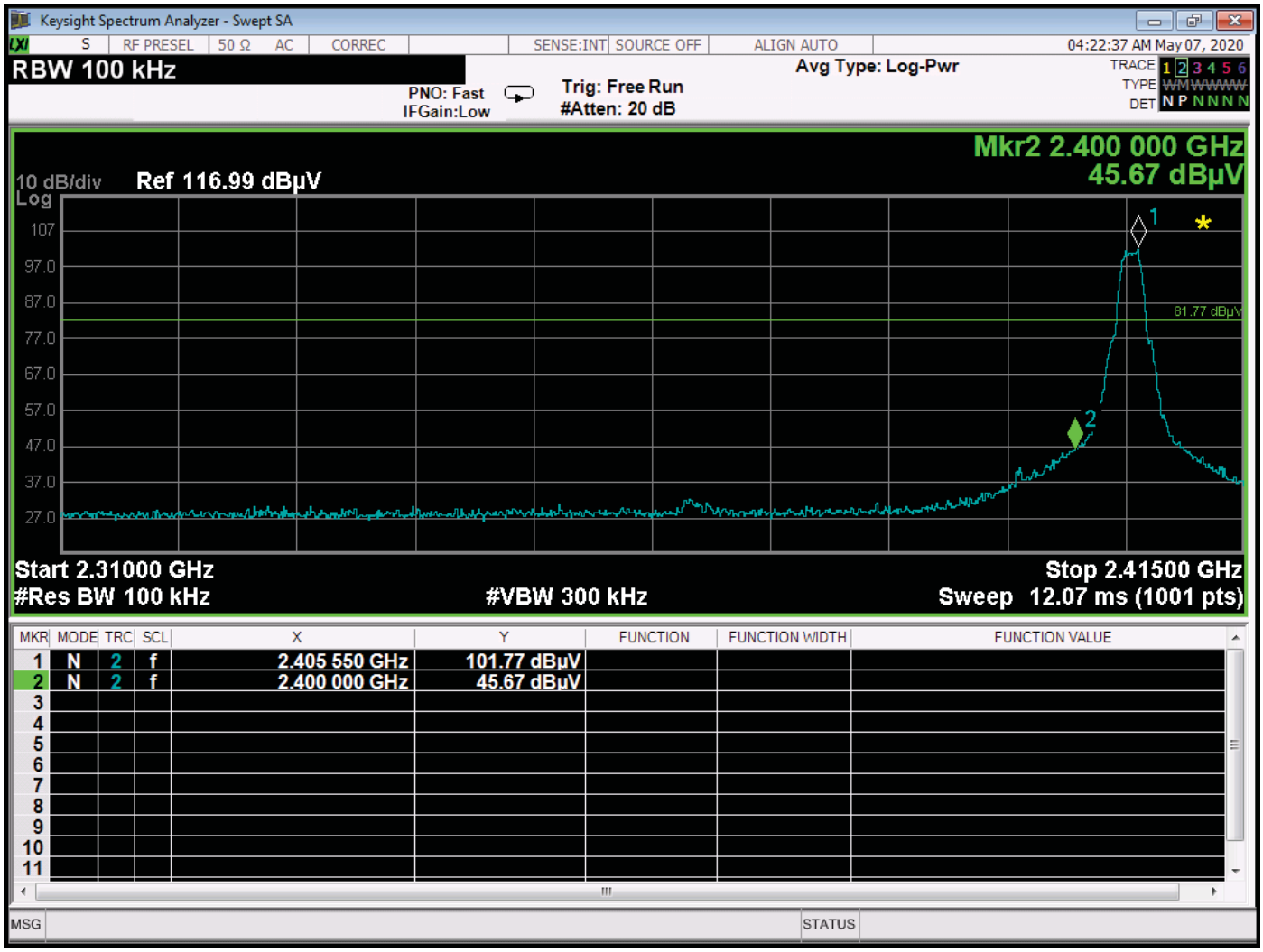
Band Edge – Low Channel – Vertical Polarization – Antenna 2 – Z-Axis – RMS Average



Band Edge – High Channel – Horizontal Polarization – Antenna 2 – X-Axis – RMS Average



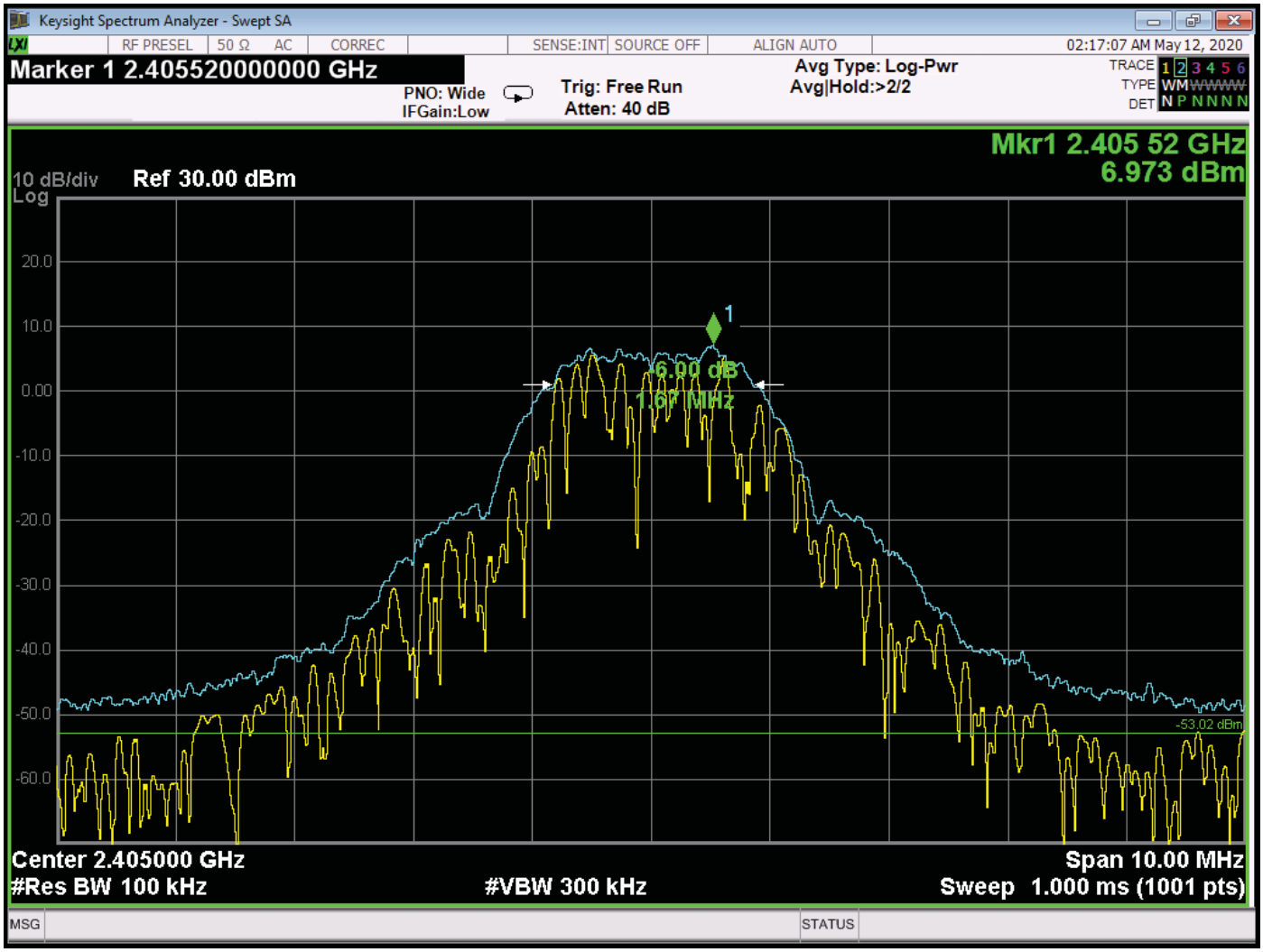
Band Edge – High Channel – Vertical Polarization – Antenna 2 – Y-Axis – RMS Average



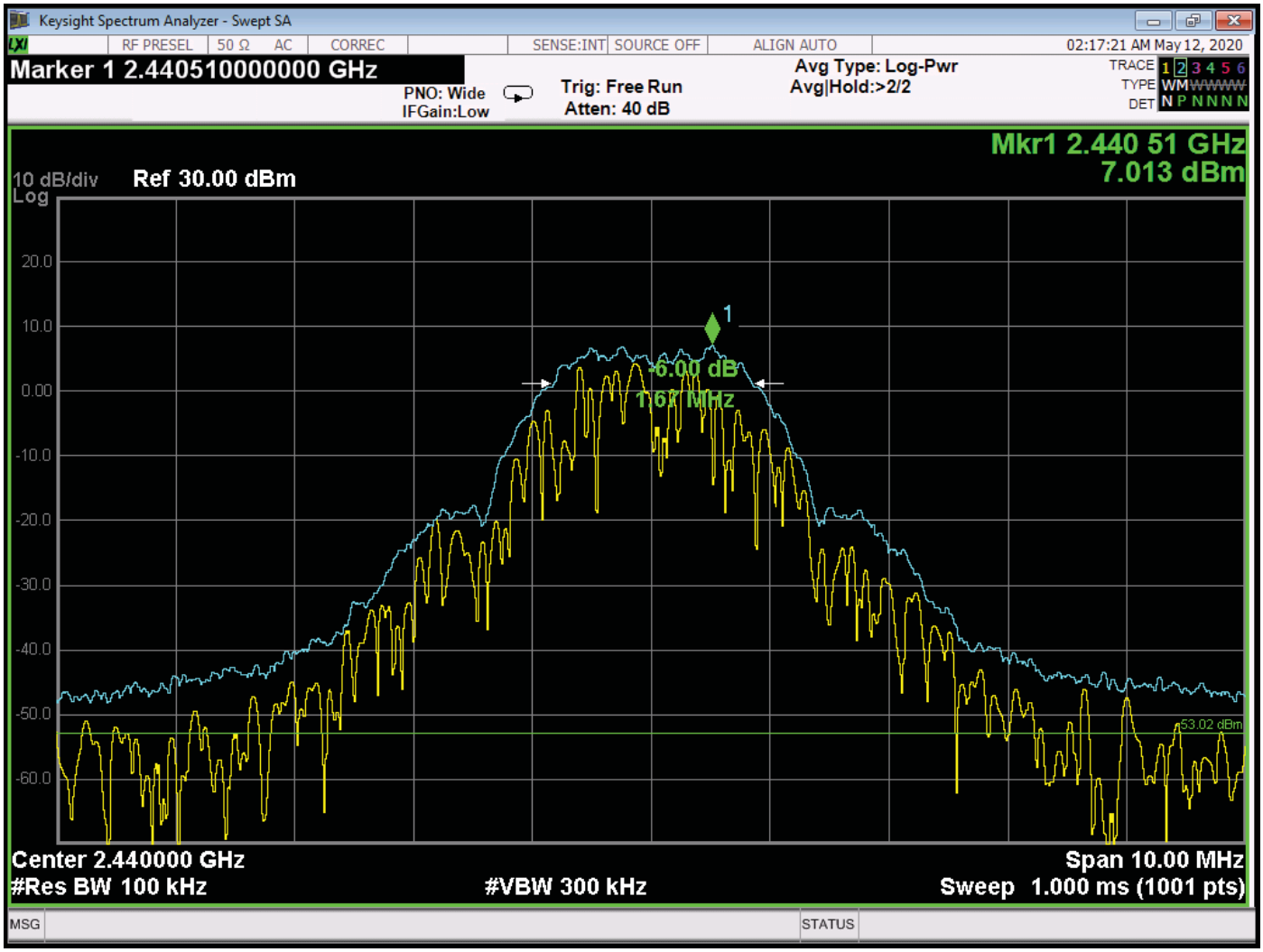
Band Edge – Low Channel – at 2400 MHz – Antenna 2

-6 dB BANDWIDTH

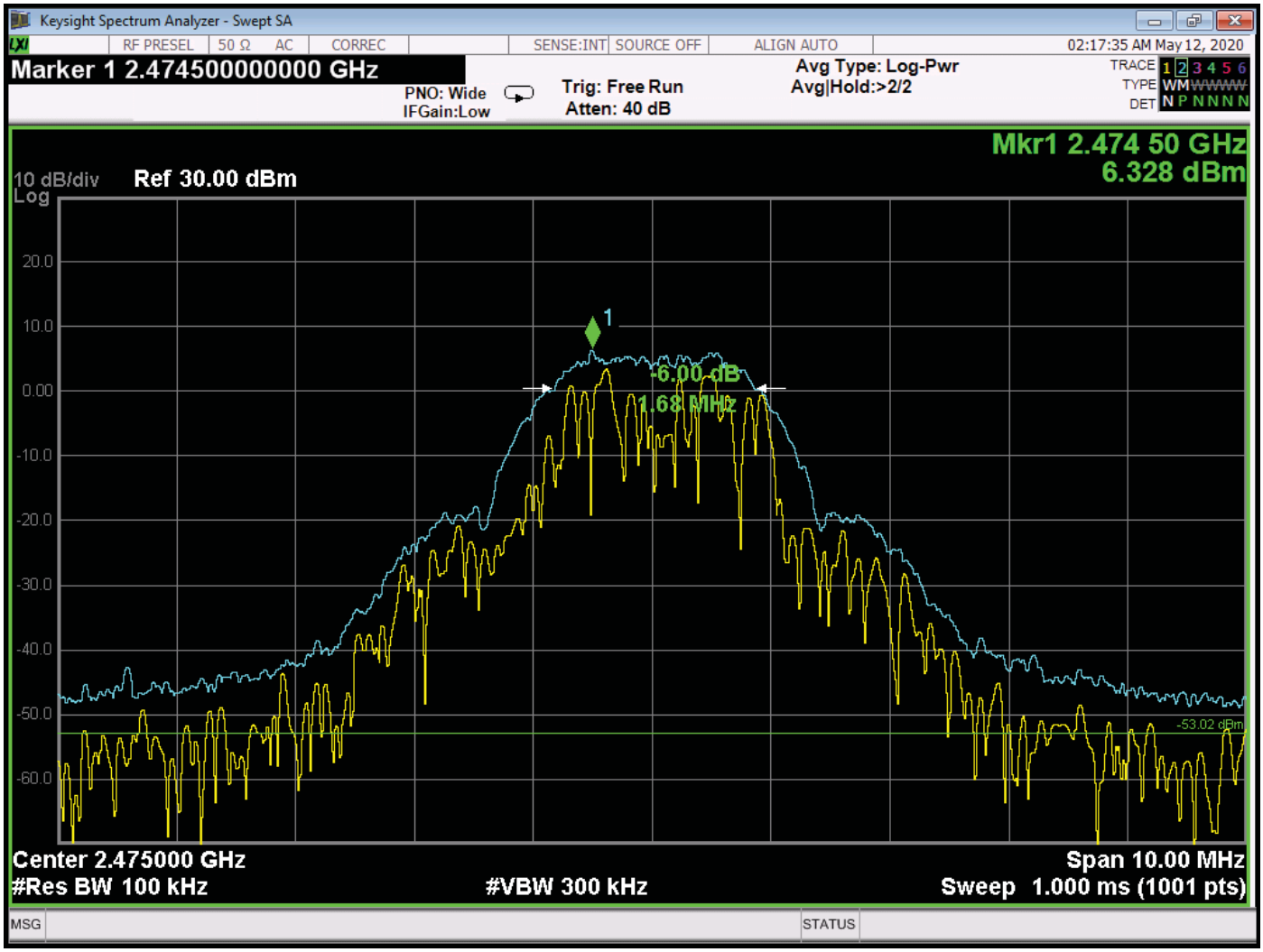
DATA SHEETS



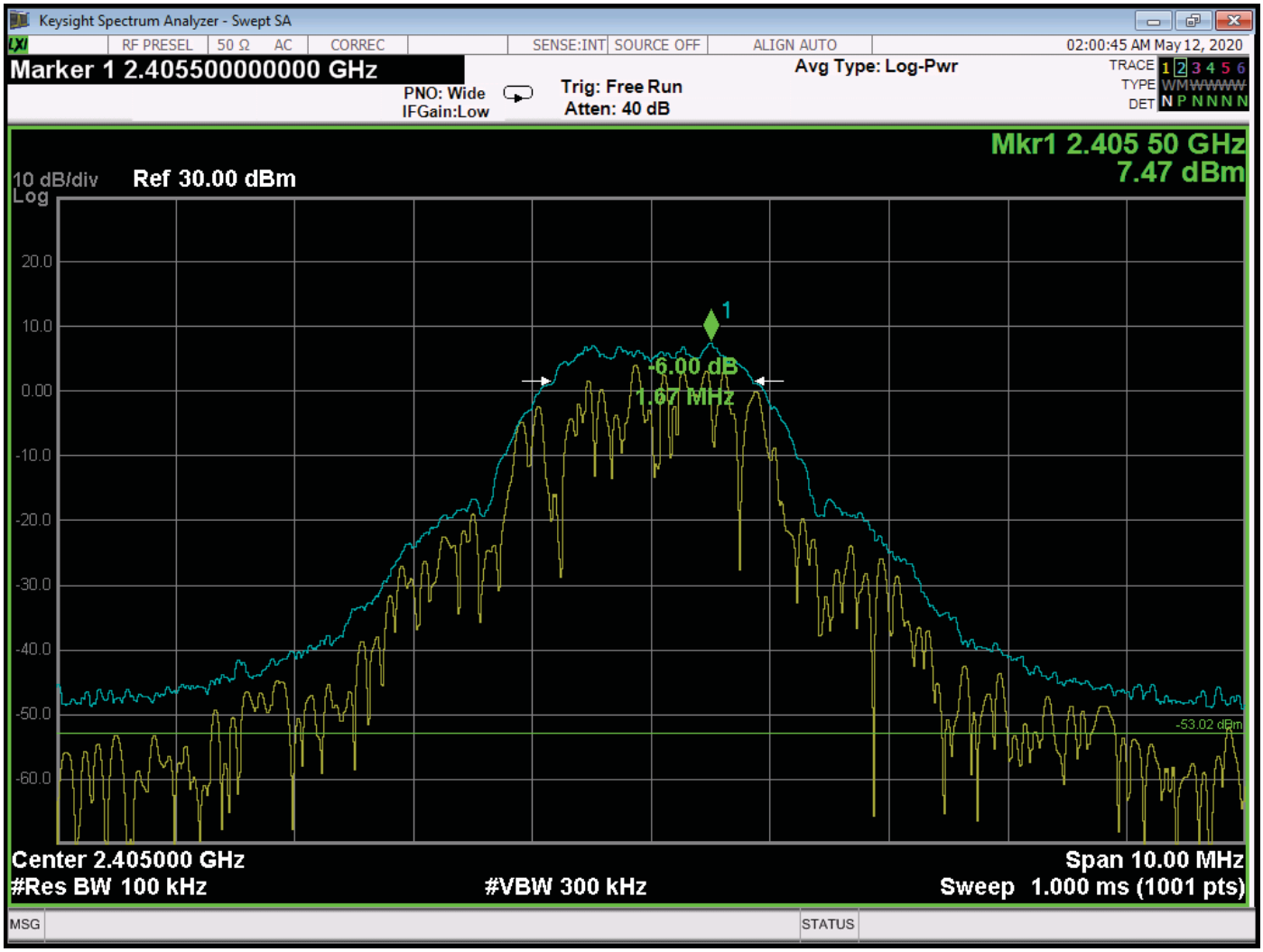
-6 dB Bandwidth – Low Channel – Antenna 1



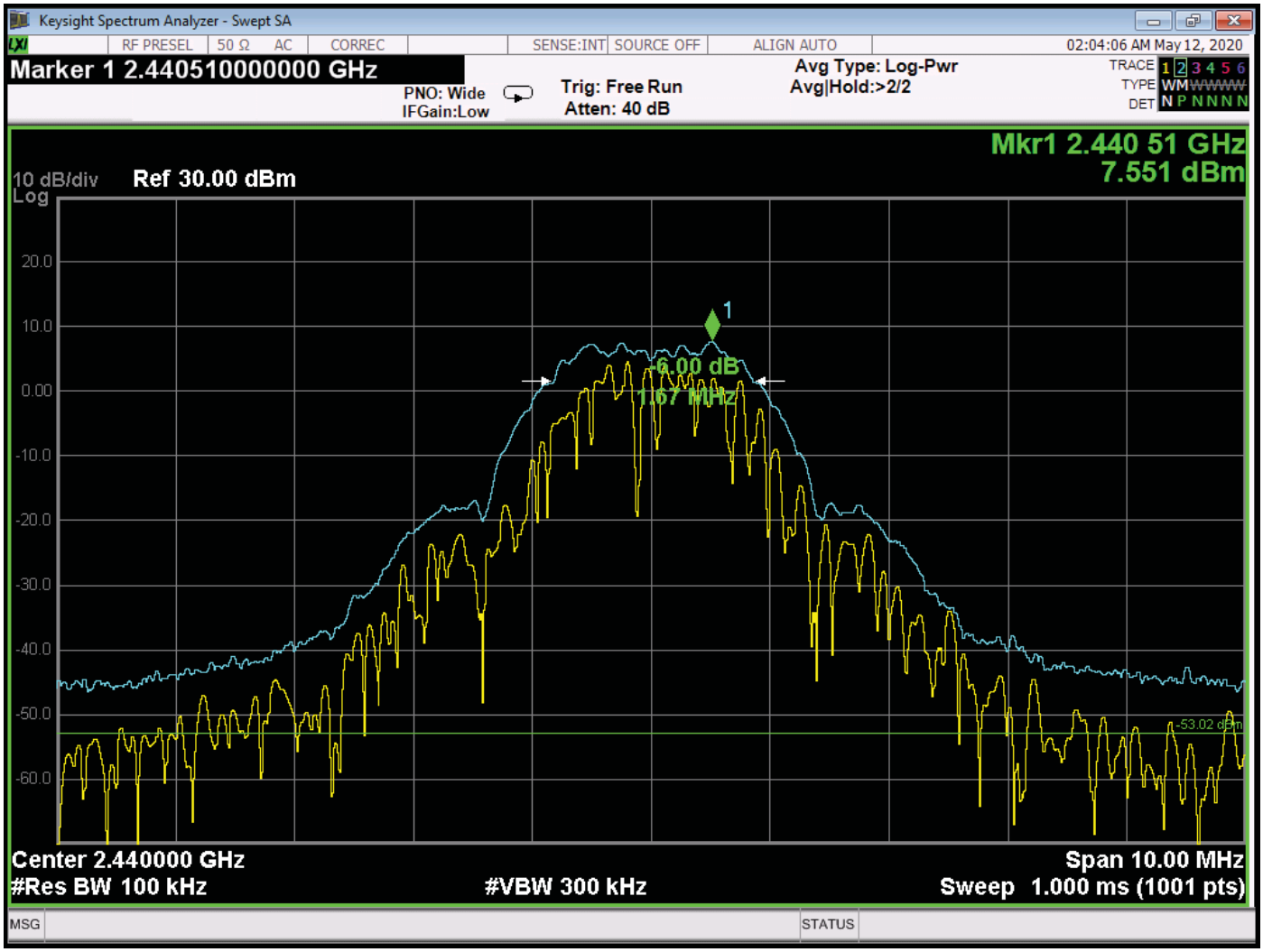
-6 dB Bandwidth – Middle Channel – Antenna 1



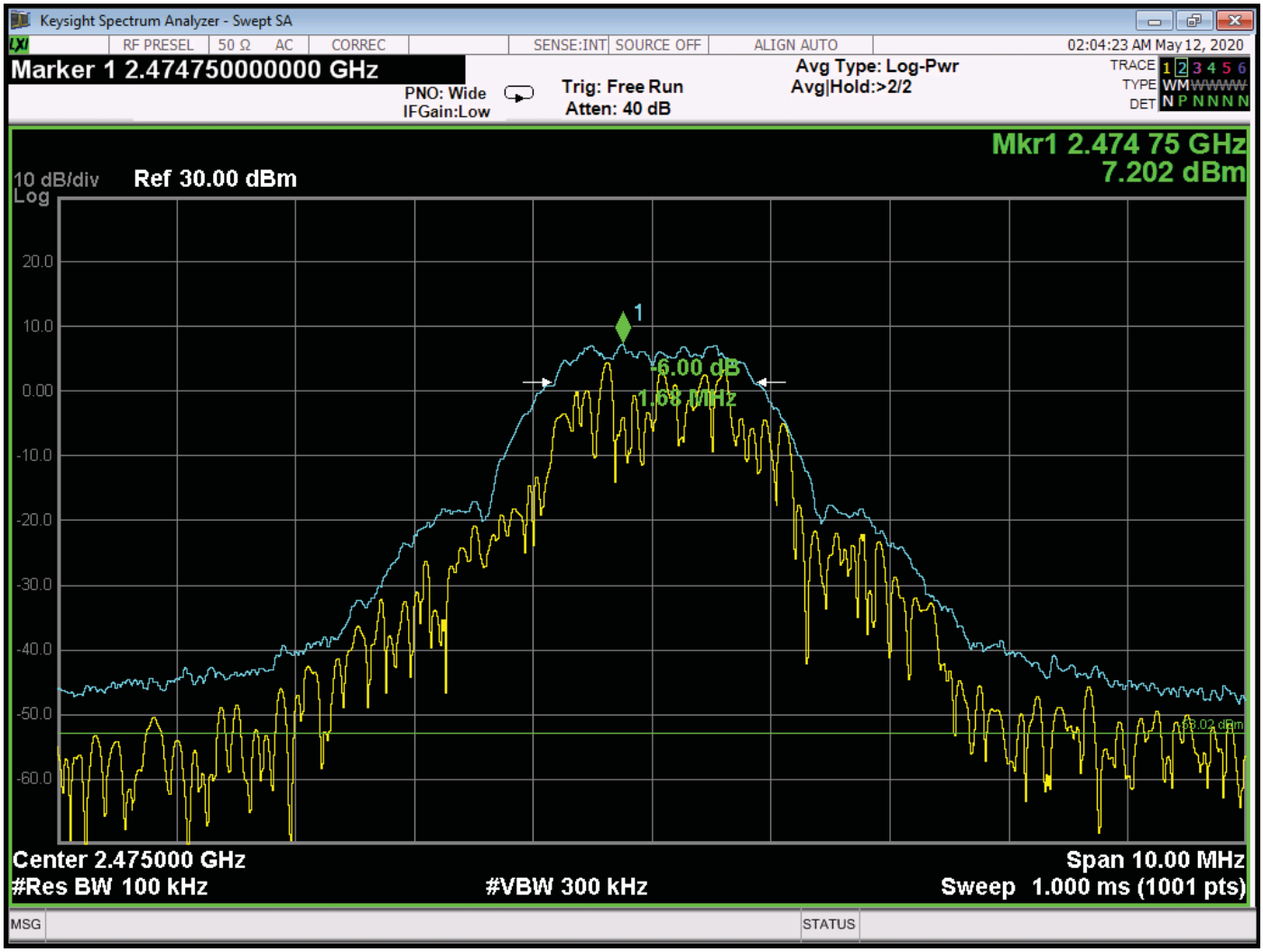
-6 dB Bandwidth – High Channel – Antenna 1



-6 dB Bandwidth – Low Channel – Antenna 2



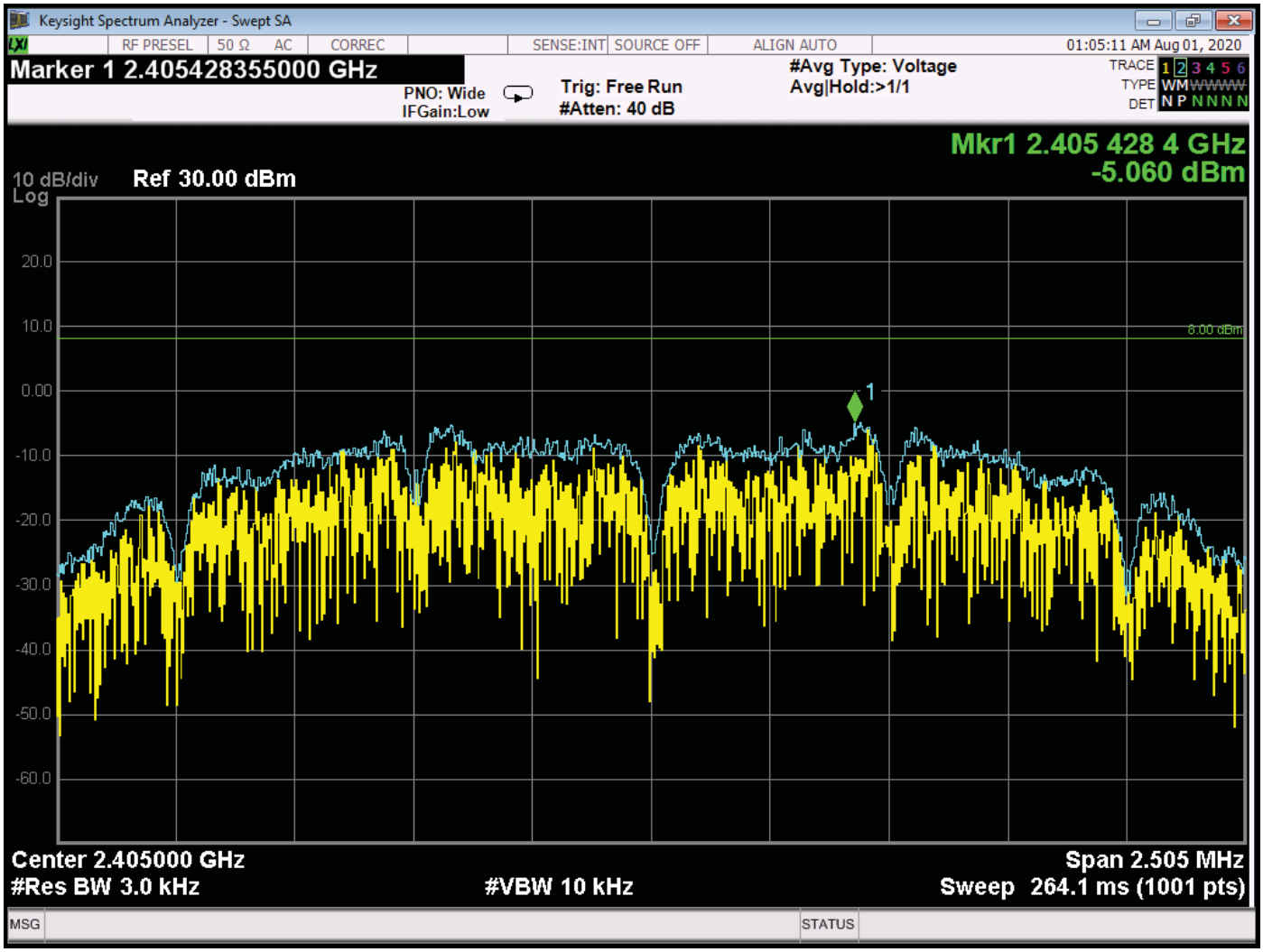
-6 dB Bandwidth – Middle Channel – Antenna 2



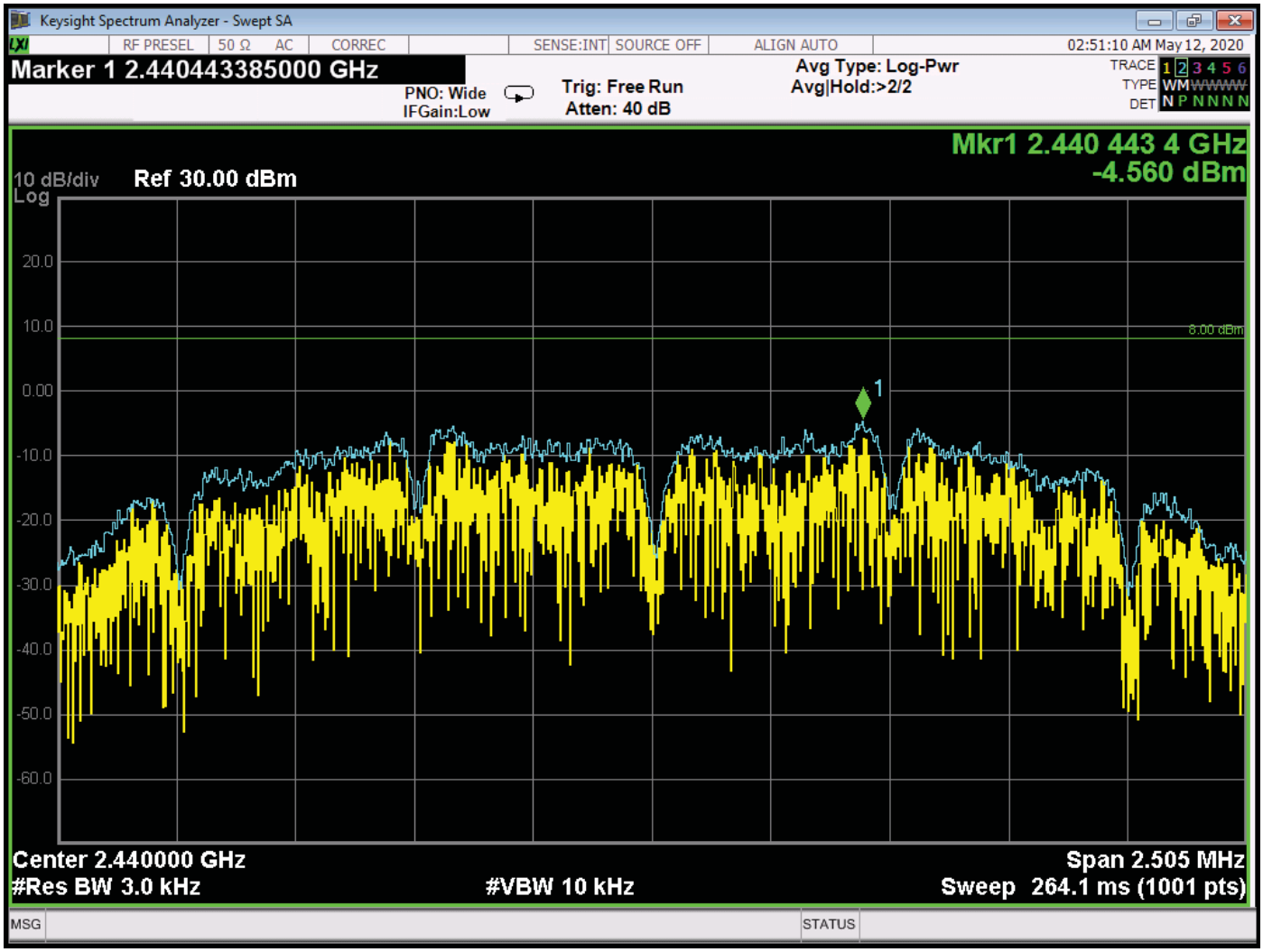
-6 dB Bandwidth – High Channel – Antenna 2

SPECTRAL DENSITY OUTPUT

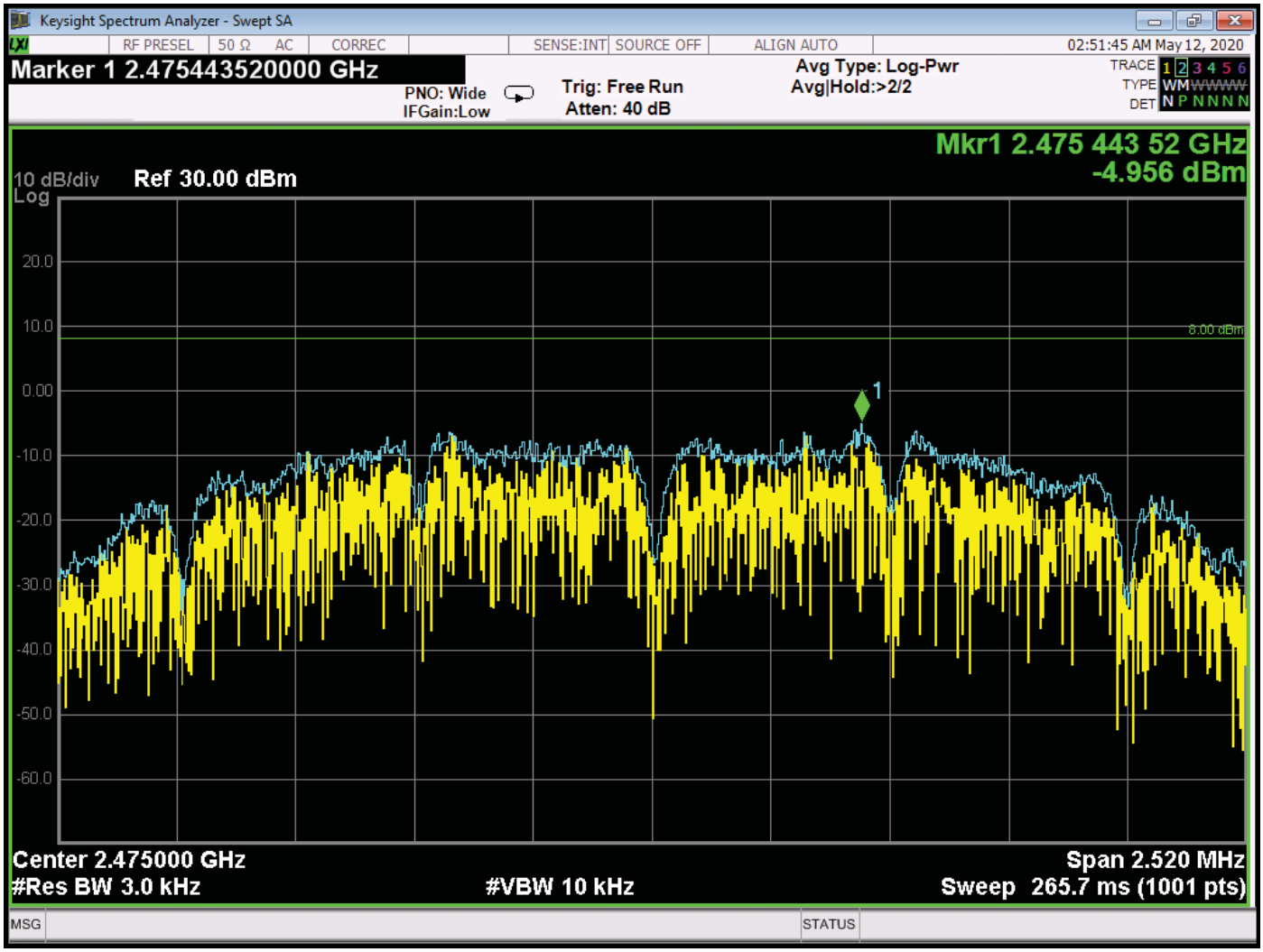
DATA SHEETS



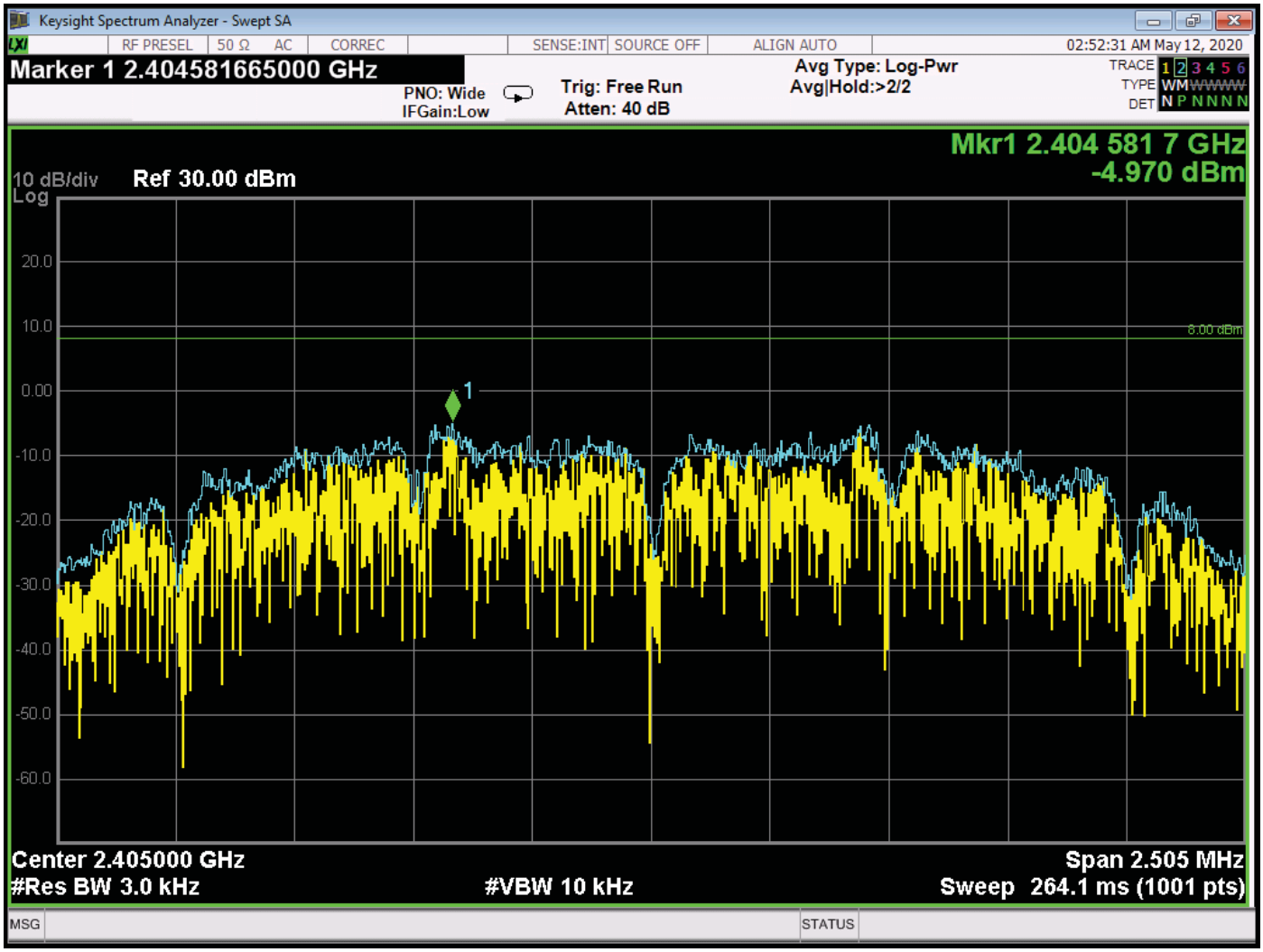
Spectral Density – Low Channel – Antenna 1



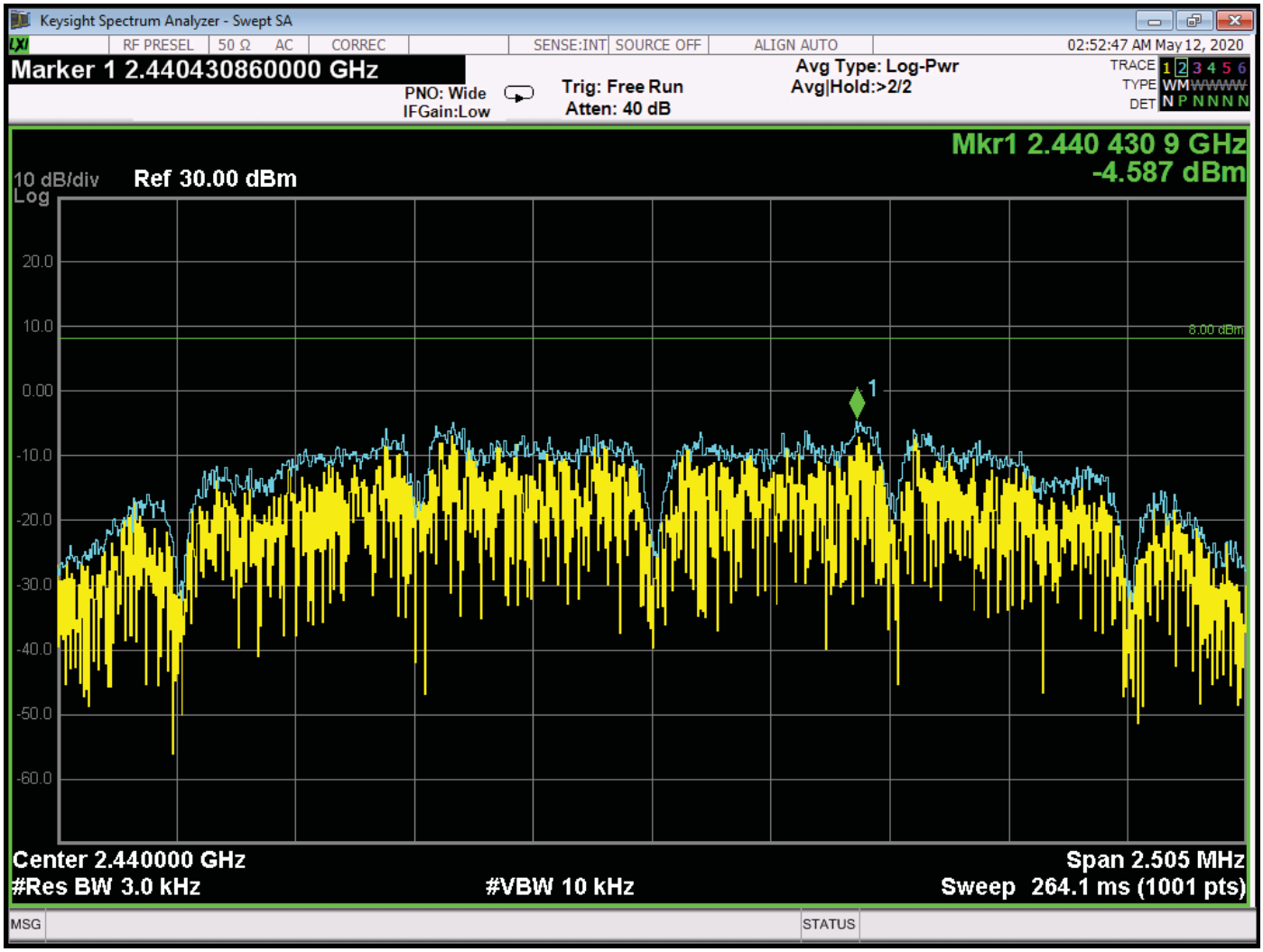
Spectral Density – Middle Channel – Antenna 1



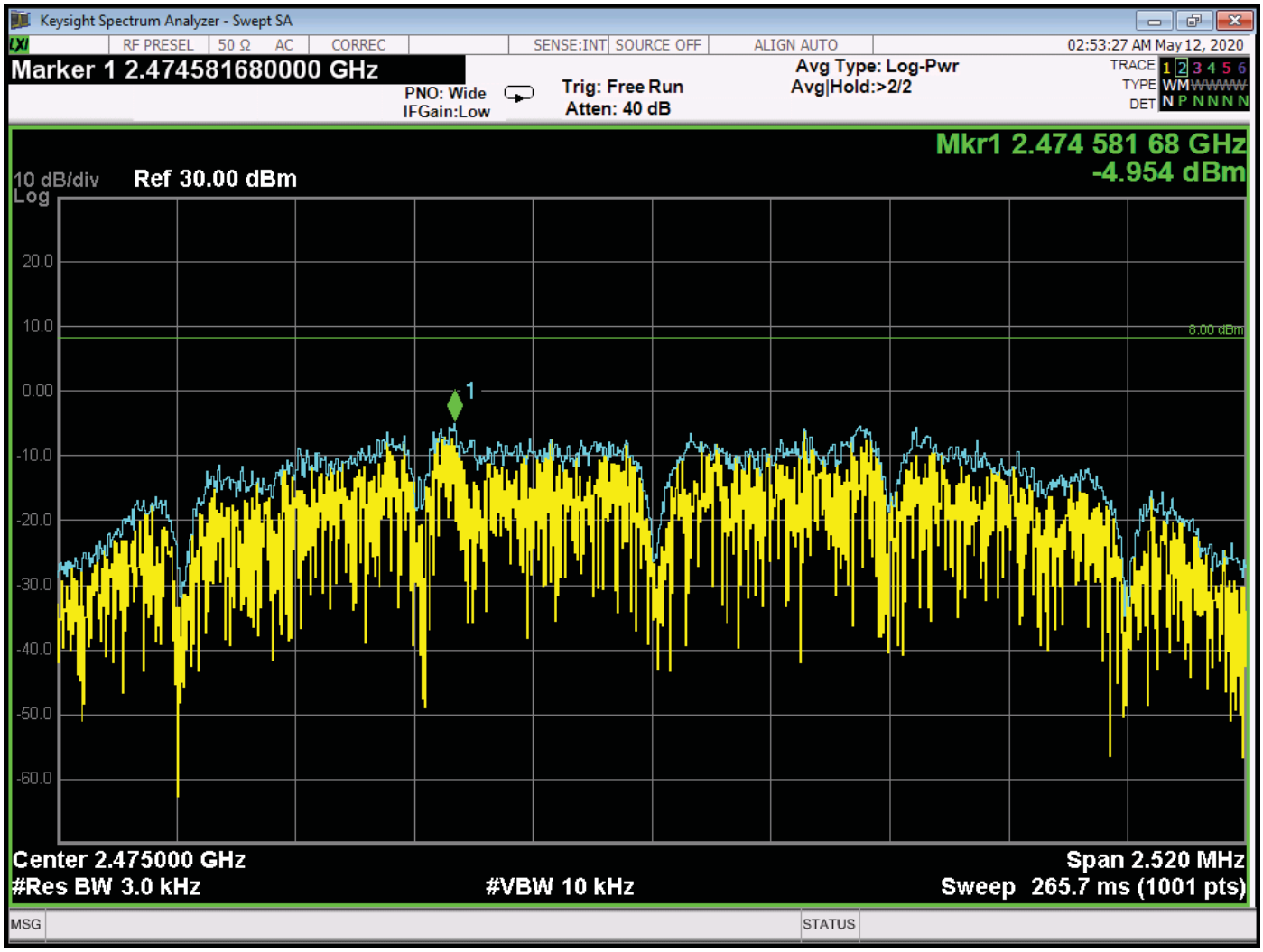
Spectral Density – High Channel – Antenna 1



Spectral Density – Low Channel – Antenna 2



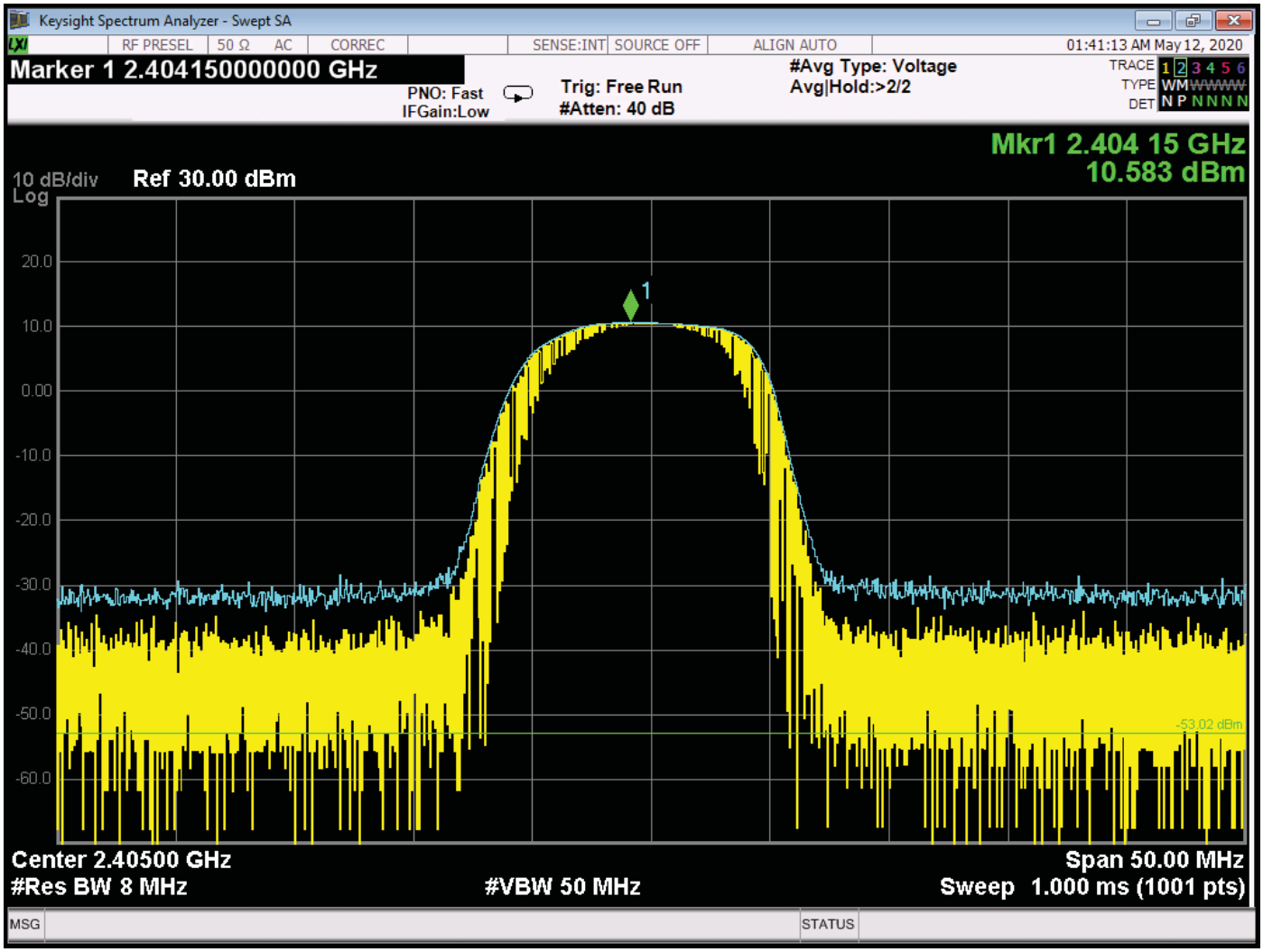
Spectral Density – Middle Channel – Antenna 2



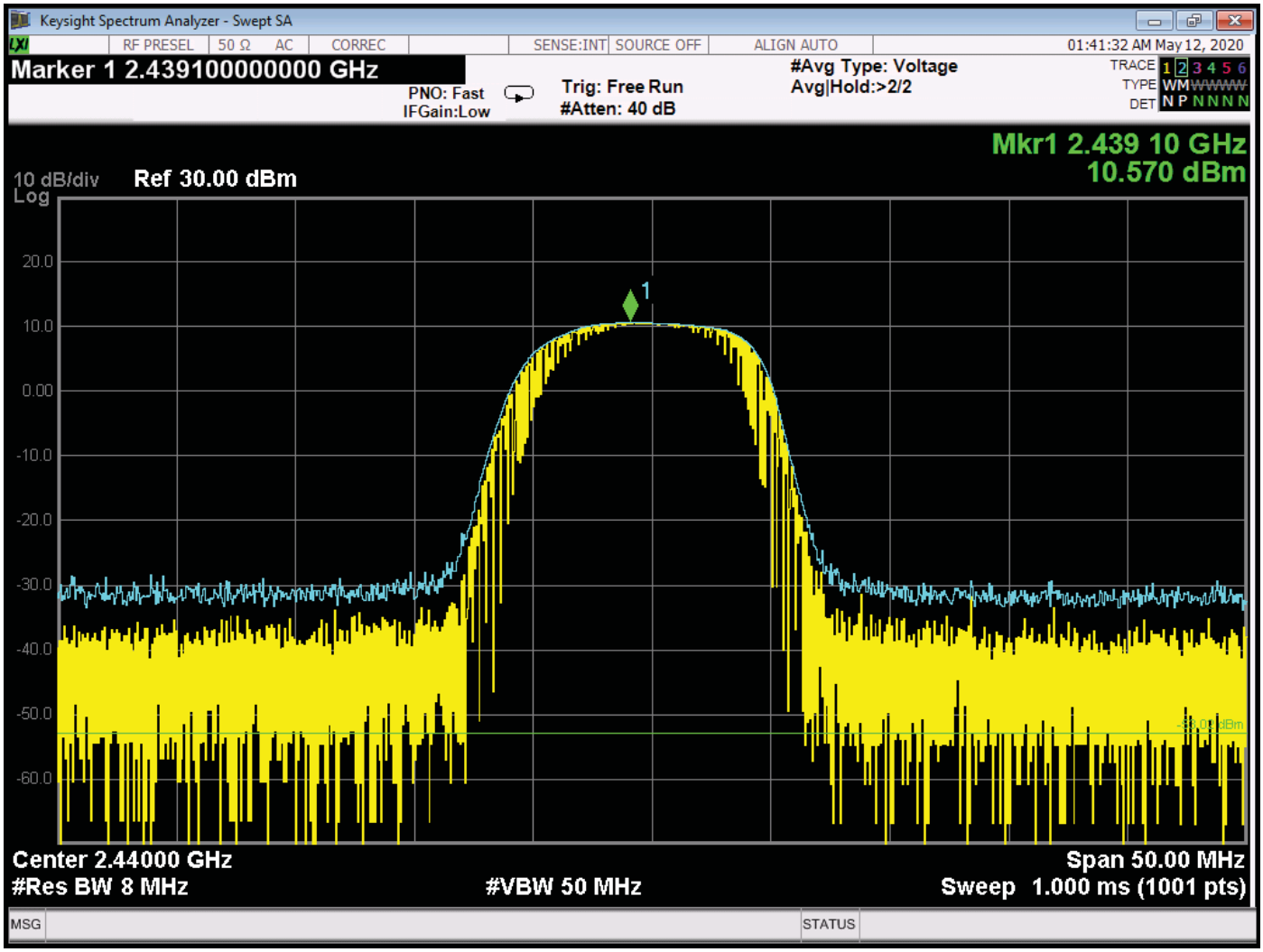
Spectral Density – High Channel – Antenna 2

PEAK OUTPUT POWER

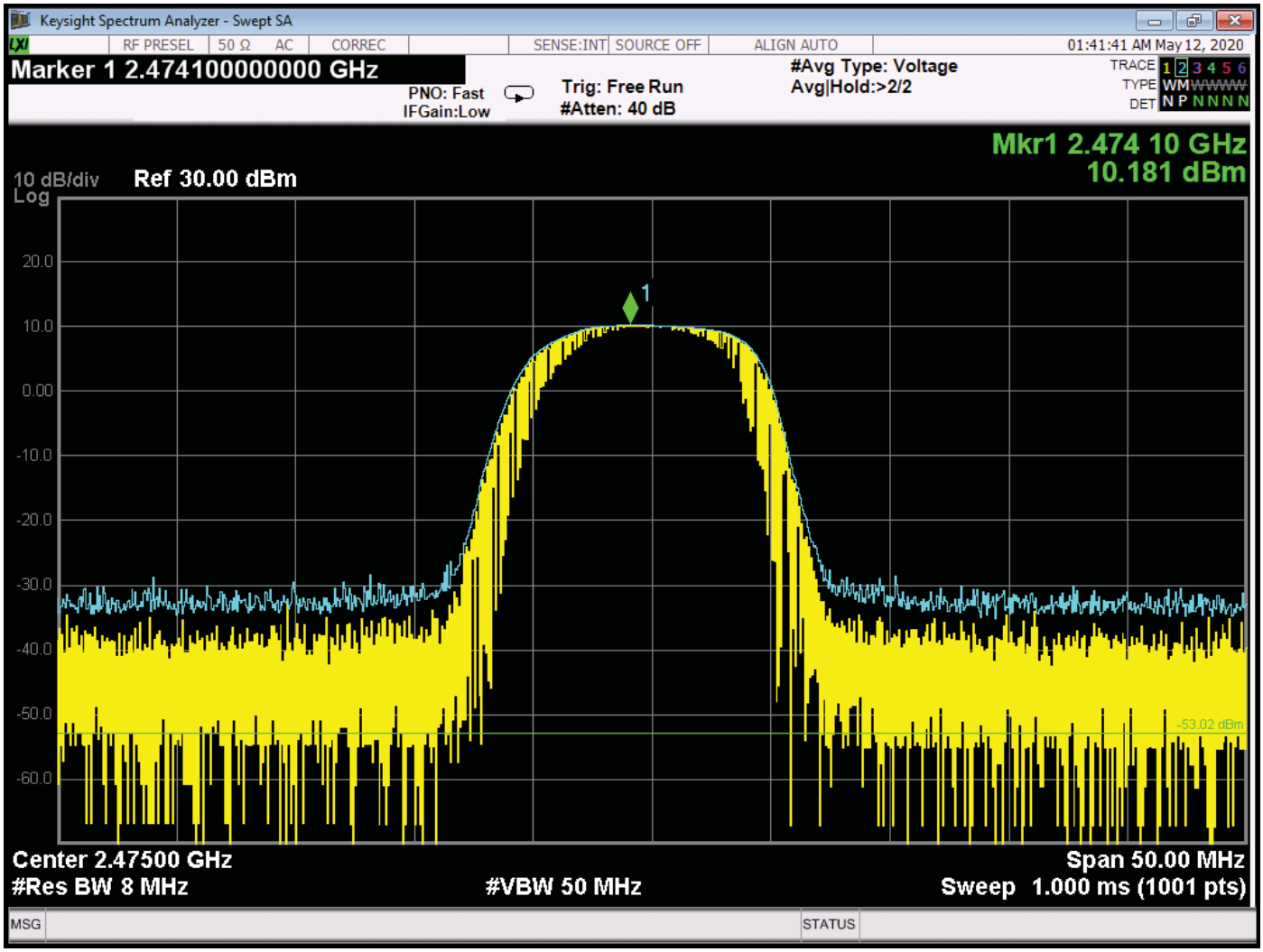
DATA SHEETS



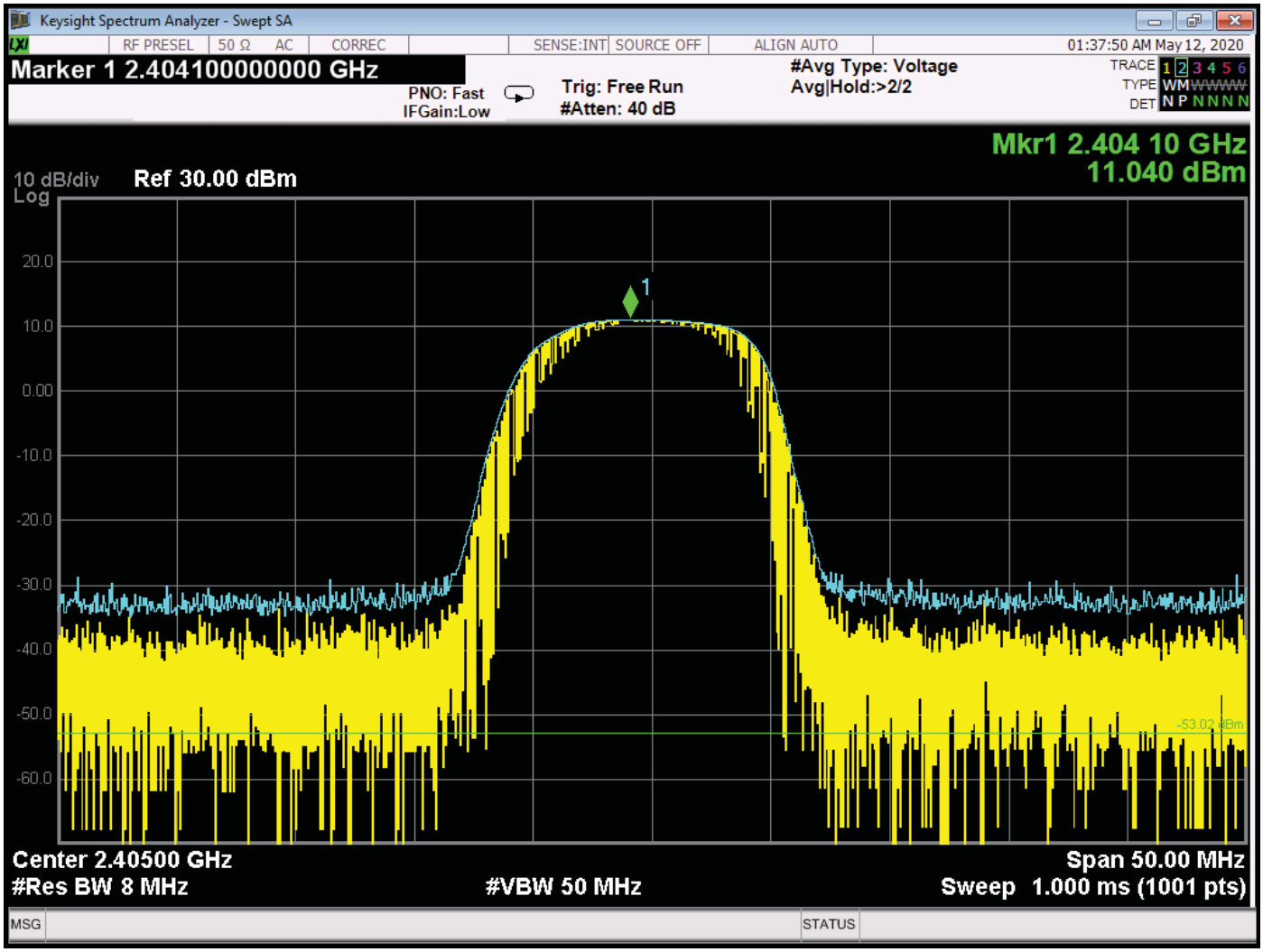
Peak Output Power – Low Channel – Antenna 1



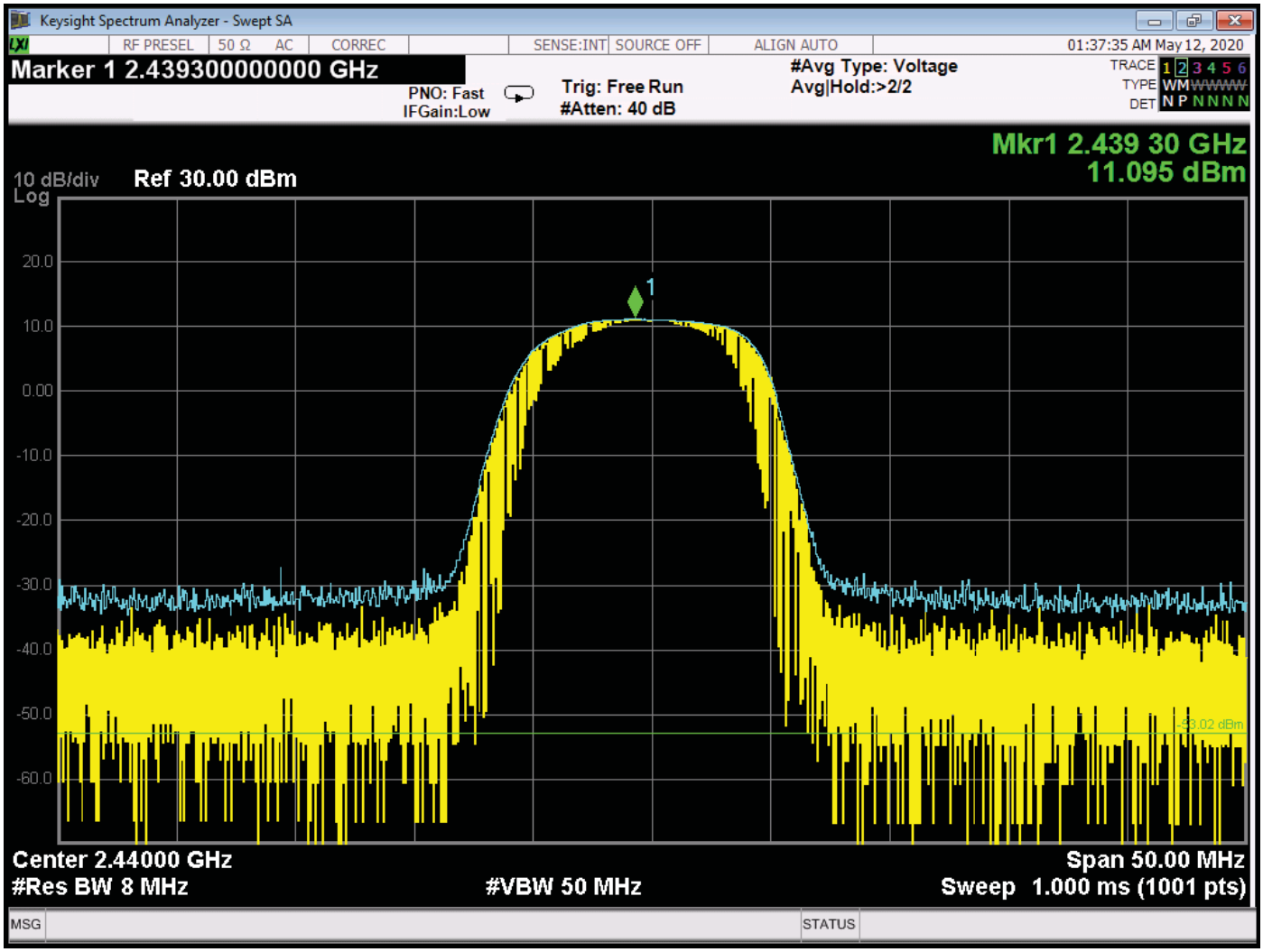
Peak Output Power – Middle Channel – Antenna 1



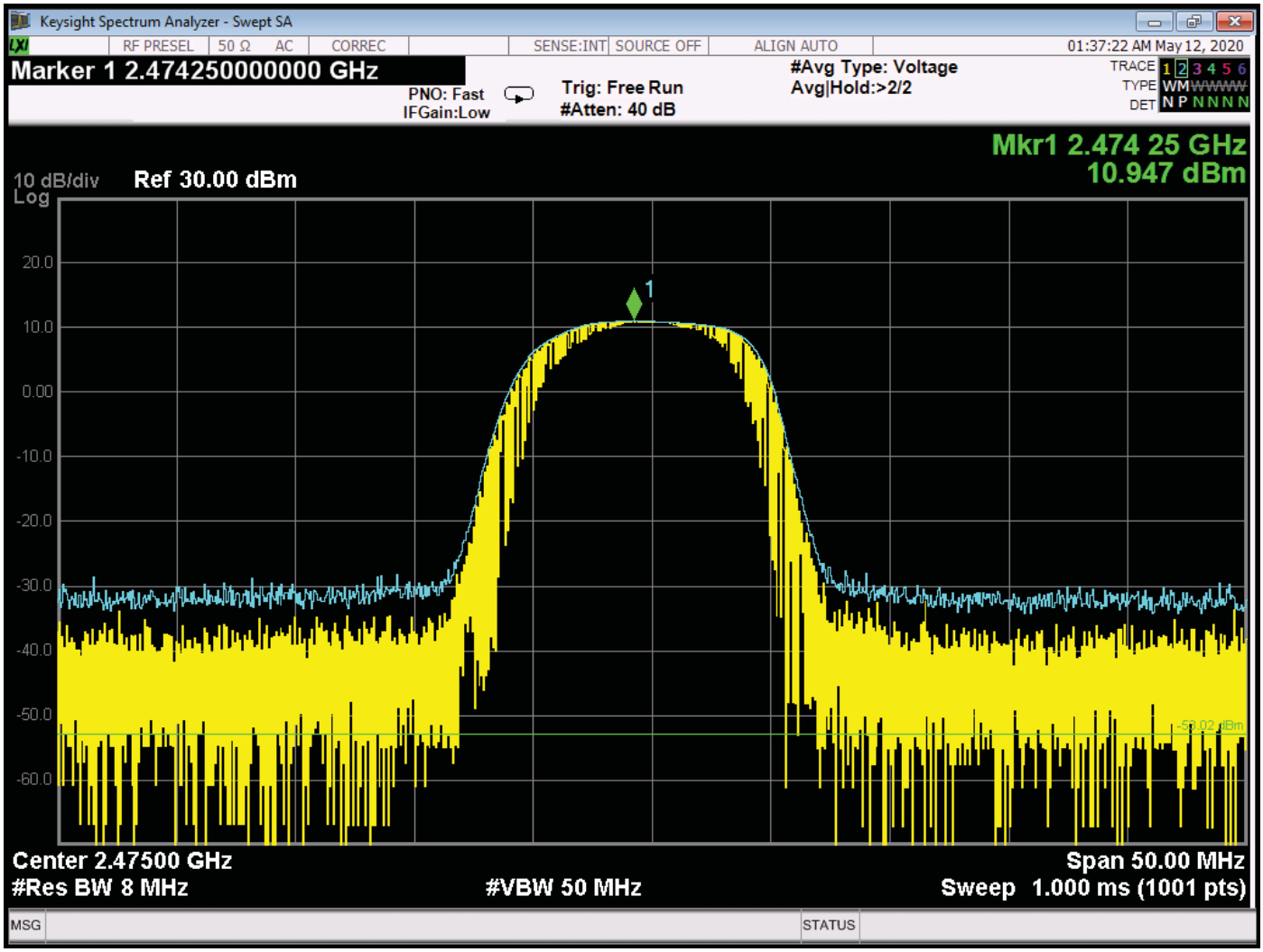
Peak Output Power – High Channel – Antenna 1



Peak Output Power – Low Channel – Antenna 2



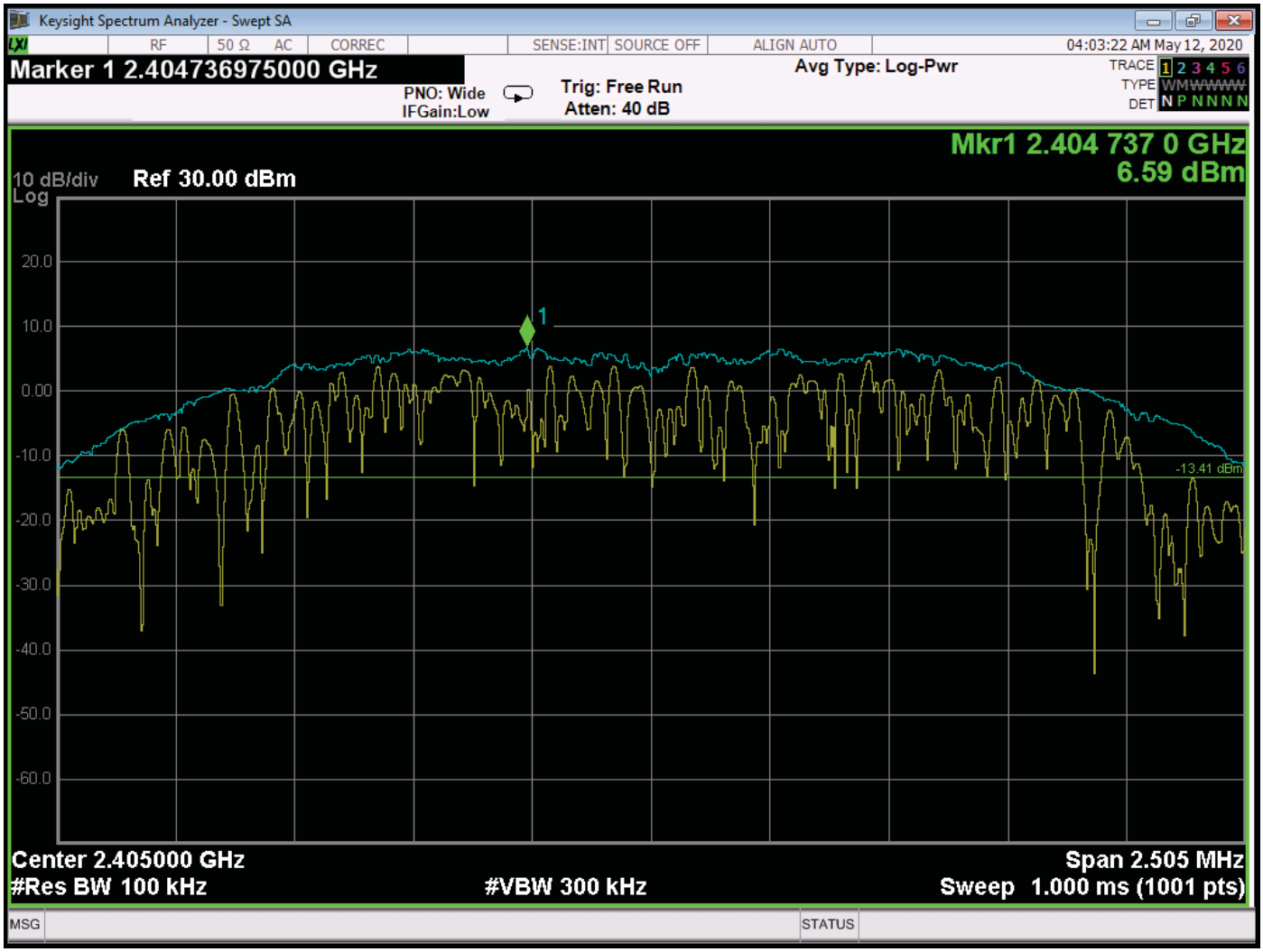
Peak Output Power – Middle Channel – Antenna 2



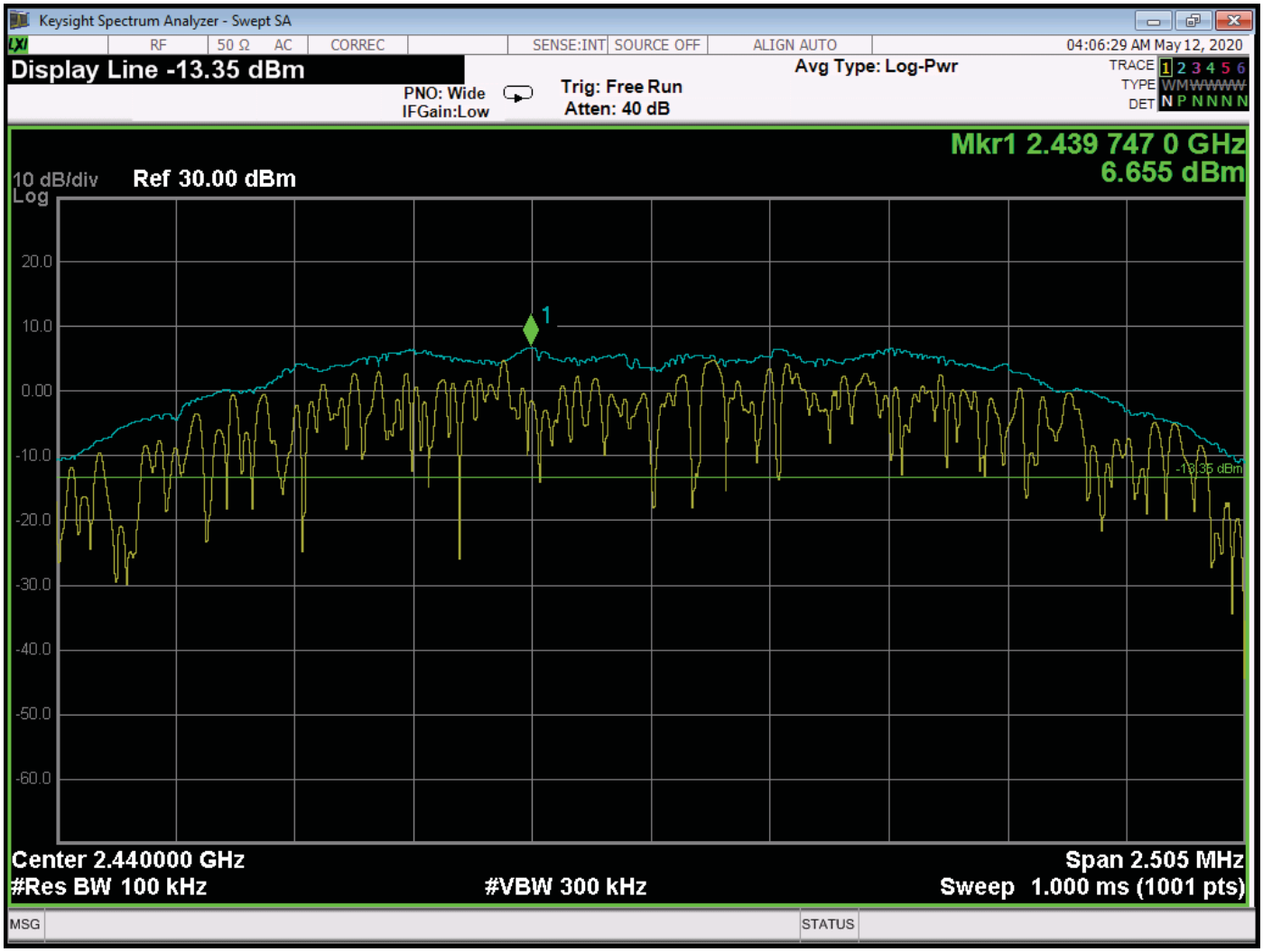
Peak Output Power – High Channel – Antenna 2

EMISSIONS IN NON-RESRTICTED BANDS

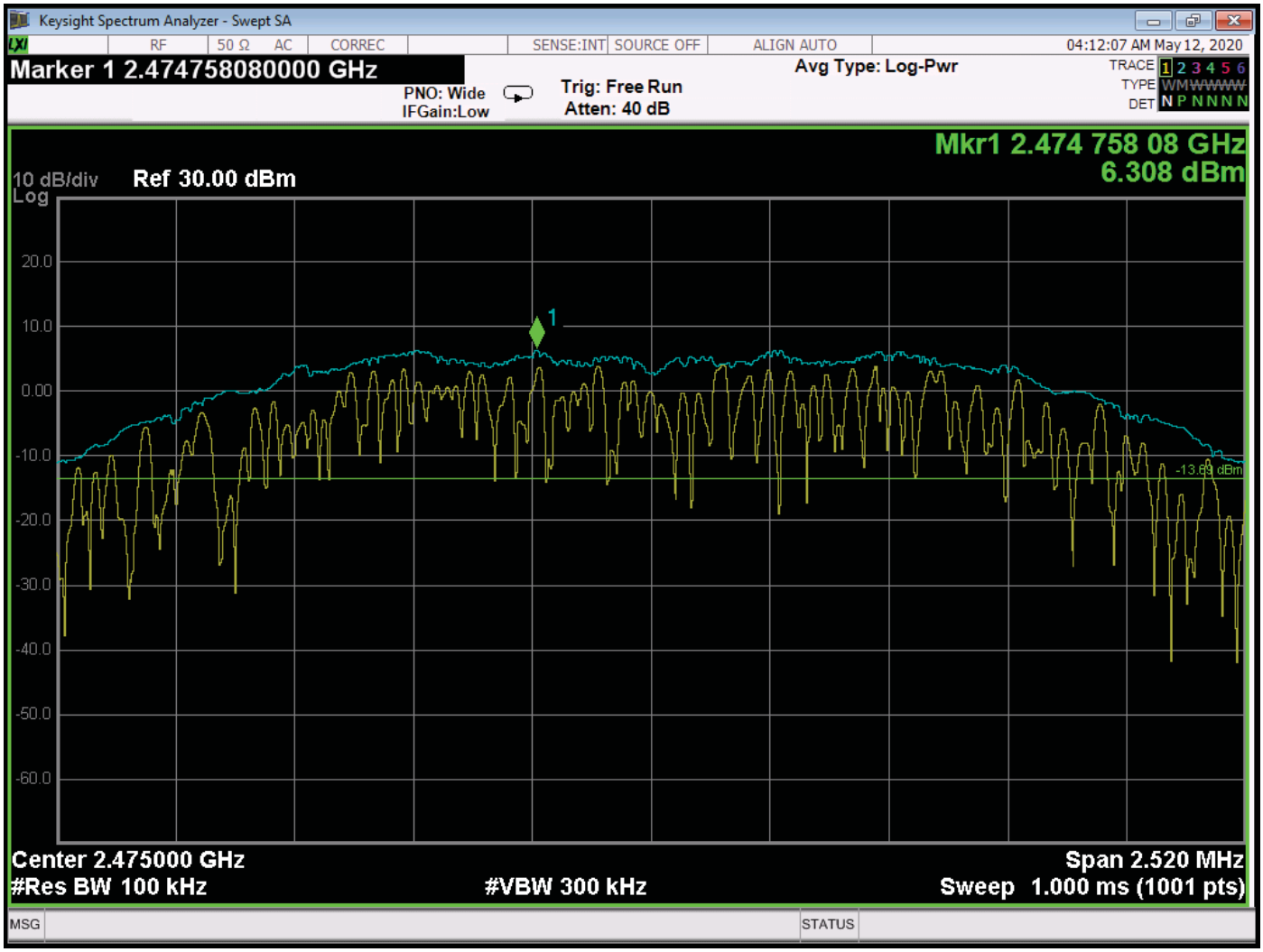
DATA SHEETS



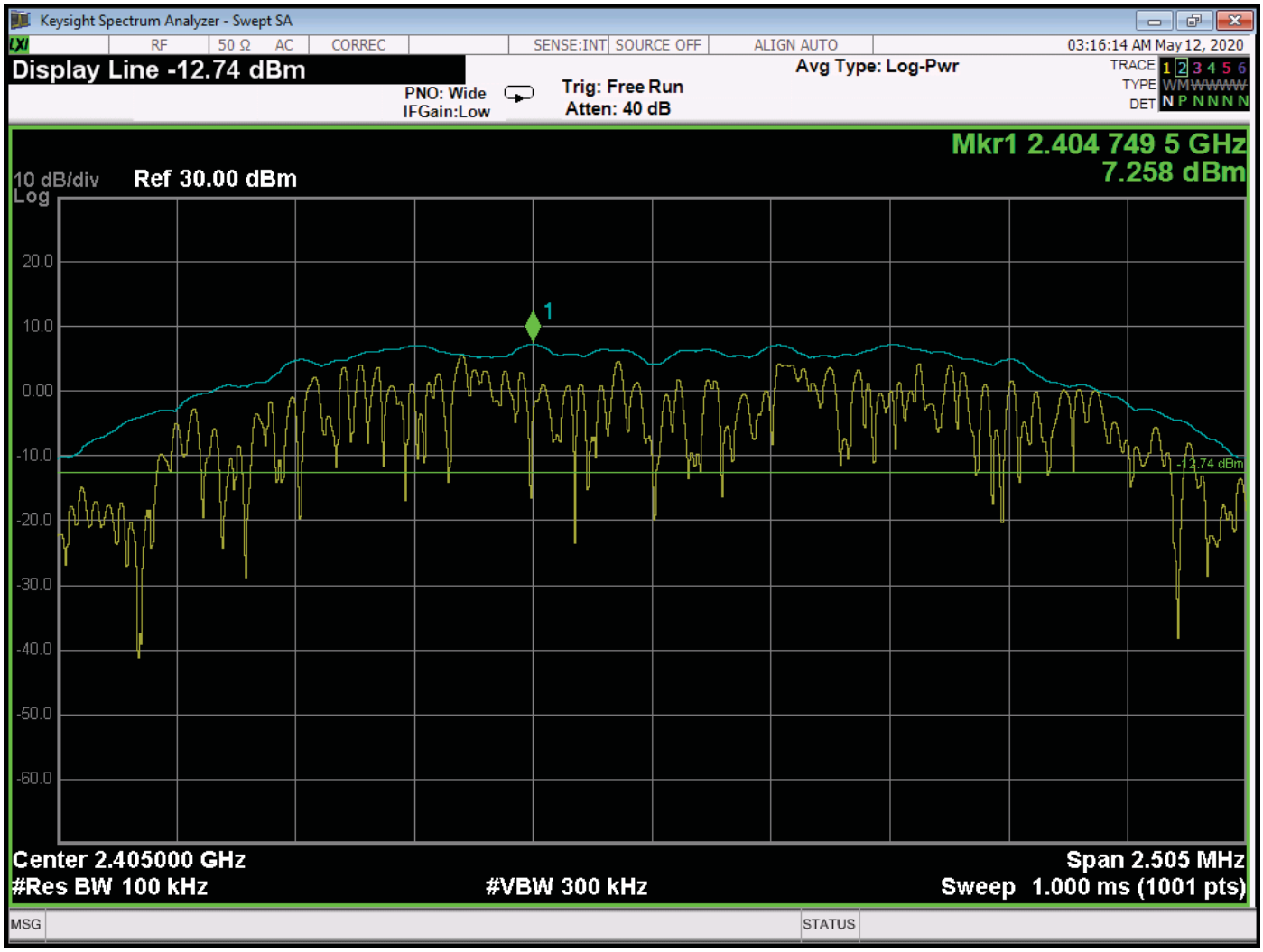
RF Antenna Conducted – Reference Level – 2405 MHz – Antenna 1



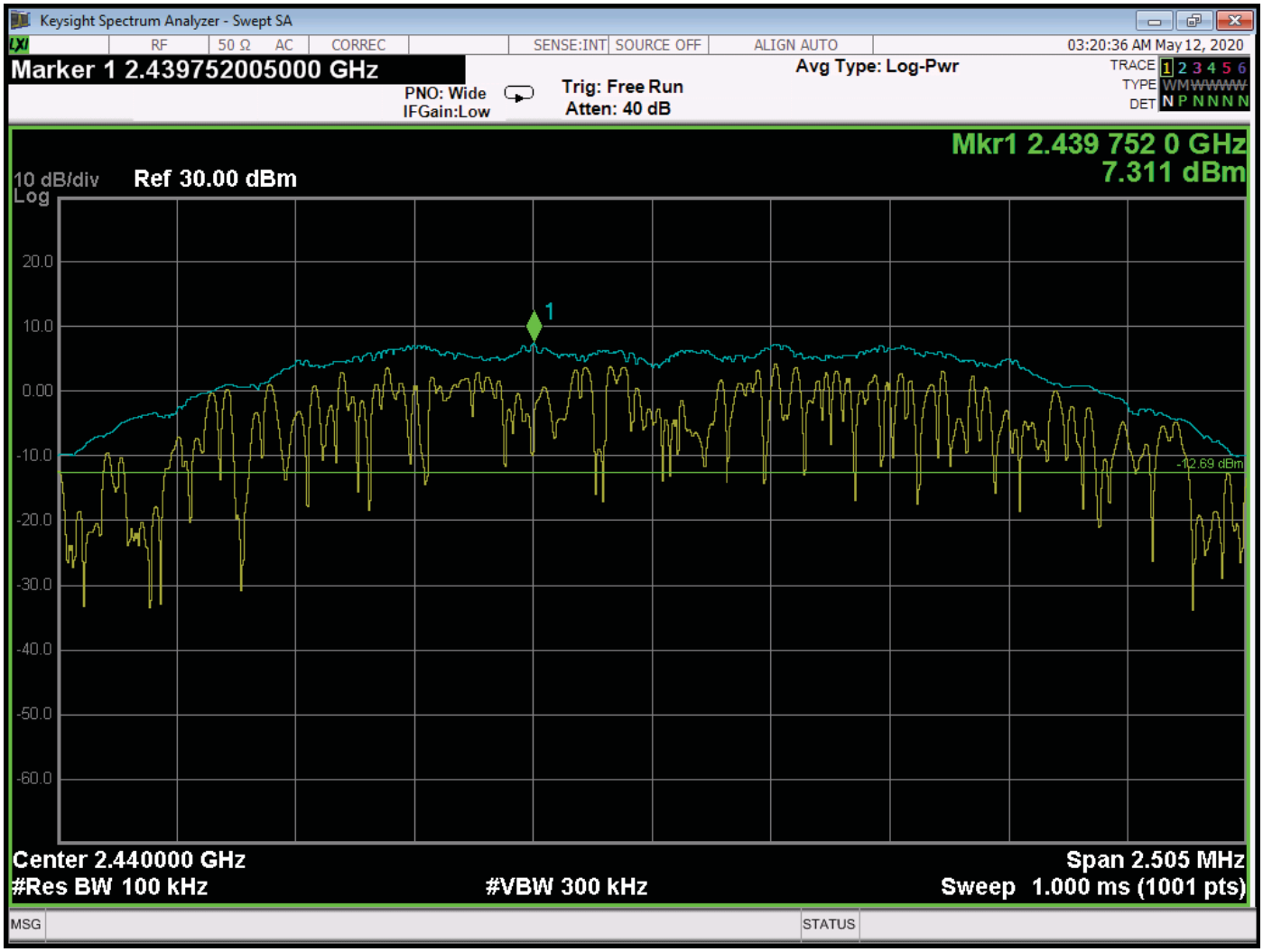
RF Antenna Conducted – Reference Level – 2440 MHz – Antenna 1



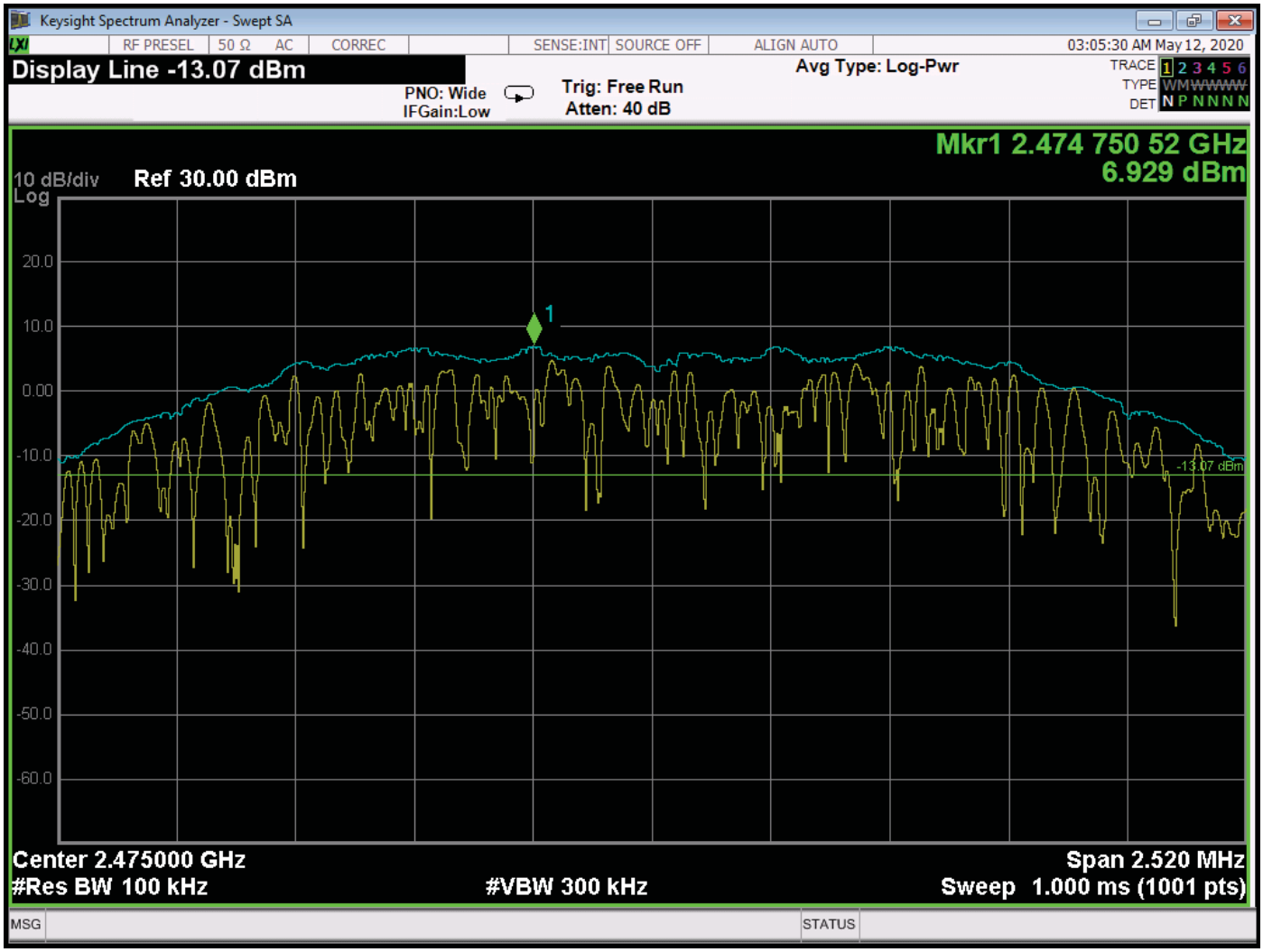
RF Antenna Conducted – Reference Level – 2475 MHz – Antenna 1



RF Antenna Conducted – Reference Level – 2405 MHz – Antenna 2



RF Antenna Conducted – Reference Level – 2440 MHz – Antenna 2



RF Antenna Conducted – Reference Level – 2475 MHz – Antenna 2

UNIVERSAL ELECTRONICS, INC.

COMCAST XH KEYPAD ZB3.0 2020

PART NUMBER: H34450BA00-00007

EMISSIONS IN NON-RESTRICTED BANDS

ANTENNA 1

FREQUENCY (MHz)	LEVEL (dBm)	Limit* (dBm)	Margin (dB)
2143.60	-48.937	-13.345	-35.592
2161.53	-49.185	-13.345	-35.840
2169.00	-48.624	-13.345	-35.279

Note: The three highest non-restricted emissions are reported.

*The Limit is based on 20 dB below the highest reference level obtained on the previous pages per section 11.11.2 of ANSI C63.10.
The channel found to have the maximum level can be used to determine the reference level

UNIVERSAL ELECTRONICS, INC.

COMCAST XH KEYPAD ZB3.0 2020

PART NUMBER: H34450BA00-00007

EMISSIONS IN NON-RESTRICTED BANDS

ANTENNA 2

FREQUENCY (MHz)	LEVEL (dBm)	Limit* (dBm)	Margin (dB)
2077.40	-48.10	-12.689	-35.411
2054.40	-49.43	-12.689	-36.741
2146.20	-49.02	-12.689	-36.331

Note: The three highest non-restricted emissions are reported.

*The Limit is based on 20 dB below the highest reference level obtained on the previous pages per section 11.11.2 of ANSI C63.10.
The channel found to have the maximum level can be used to determine the reference level