

Prüfbericht-Nr.: <i>Test report no.:</i>	CN217VKA 001	Auftrags-Nr.: <i>Order no.:</i>	168328821	Seite 1 von 19 <i>Page 1 of 19</i>
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2021-07-28	
Auftraggeber: <i>Client:</i>	ZEN Factory Group (Asia) Limited A5-B, 12/F, BLOCK A, HONG KONG INDUSTRIAL CENTRE, 489-491 CASTLE PEAK ROAD, KOWLOON, HONG KONG			
Prüfgegenstand: <i>Test item:</i>	Chat Pad Controller Keyboard for Xbox (Dongle)			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	NS-XB1CHATPAD, NS-XB1CHATPAD-C (Trademark: INSIGNIA)			
Auftrags-Inhalt: <i>Order content:</i>	FCC and IC approval			
Prüfgrundlage: <i>Test specification:</i>	CFR47 FCC Part 15: Subpart C Section 15.249 CFR47 FCC Part 15: Subpart C Section 15.209 CFR47 FCC Part 15: Subpart C Section 15.207 CFR47 FCC Part 15: Subpart B Section 15.107 CFR47 FCC Part 15: Subpart B Section 15.109 RSS-210 Issue 10 December 2019 RSS-Gen Issue 5 March 2019 ICES-003 Issue 7 October 2020			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2021-07-29	Please refer to photo documents		
Prüfmuster-Nr.: <i>Test sample no.:</i>	A003099328			
Prüfzeitraum: <i>Testing period:</i>	2021-08-16 - 2021-09-02			
Ort der Prüfung: <i>Place of testing:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von: <i>tested by:</i>	 X Alex Lan Signed by: Alex Lan		genehmigt von: <i>authorized by:</i>	 X Winnie Hou Signed by: Winnie Hou
Datum: <i>Date:</i>	2021-09-09		Ausstellungsdatum: <i>Issue date:</i>	2021-09-09
Stellung / Position	Senior Project Engineer		Stellung / Position	Department Manager
Sonstiges / Other: FCC ID: WP85I02001V IC: 8632A-5I0200V HVIN: 5I02001				
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>		Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged:</i>		
* Legende: 1 = sehr gut 2 = gut 3 = befriedigend 4 = ausreichend 5 = mangelhaft P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. N/A = nicht anwendbar N/T = nicht getestet Legend: 1 = very good 2 = good 3 = satisfactory 4 = sufficient 5 = poor P(ass) = passed a.m. test specifications(s) F(ail) = failed a.m. test specifications(s) N/A = not applicable N/T = not tested				
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>				

Test Summary

5.1.1 ANTENNA REQUIREMENT

RESULT: Pass

5.1.2 FUNDAMENTAL & HARMONICS RADIATED EMISSION

RESULT: Pass

5.1.3 20dB BANDWIDTH

RESULT: Pass

5.1.4 99% BANDWIDTH

RESULT: Pass

5.1.5 RADIATED SPURIOUS EMISSION & BAND EDGE

RESULT: Pass

5.1.6 CONDUCTED EMISSION ON AC MAINS

RESULT: Pass

5.1.7 RADIATED EMISSION

RESULT: Pass

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1 General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Photographs of the Test Set-up

Appendix B: Test Results

2 Test Sites

2.1 Test Facilities

TÜV Rheinland (Shenzhen) Co., Ltd.

362 Huanguan Road Middle Longhua District, Shenzhen 518110 People's Republic of China

FCC Accreditation Designation No.: CN1260

ISED wireless device testing laboratory: 25069

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

TÜV Rheinland (Shenzhen) Co., Ltd.

Unwanted Emission Testing (TS9975)				
Equipment	Manufacturer	Model	Serial No.	Cal. until
EMI Test Receiver	R&S	ESR 7	102021	2022-08-10
Signal Analyzer	R&S	FSV 40	101439	2022-08-09
System Controller Interface	R&S	SCI-100	S10010038	N/A
Filterbank	R&S	Wlan	100759	2022-08-09
OSP	R&S	OSP 120	102040	N/A
Pre-amplifier	R&S	SCU08F1	08320031	2022-08-09
Amplifier	R&S	SCU-18F	180070	2022-08-09
Amplifier	R&S	SCU40A	100475	2022-08-09
Trilog Broadband Antenna (30 MHz - 7 GHz)	Schwarzbeck	VULB 9162	193	2022-08-08
Double-Ridged Antenna (1 -18 GHz)	ETS-LINDGREN	3117	00218717	2022-08-08
Wideband Ridged Horn Antenna (18-40 GHz)	Steatite	QMS-00880	19067	2022-08-08
Active Loop Antenna	Schwarzbeck	FMZB 1513	302	2022-09-13
Test software	R&S	EMC32 (V10.60.10)	N/A	N/A
Control PC	Dell	OptiPlex 7050	36NV9P2	N/A
3m Semi-Anechoic Chamber	Albatross	SAC-3m	APC17151-SAC	2024-06-22

Conducted Emission				
Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
EMI Test Receiver	R&S	ESR3	102680	2022-05-19
Artificial Mains Network	R&S	ENV216	101445	2022-05-19
Radiated Emission				
Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
Horn Antenna	R&S	HF907	102706	2022-08-07
Preamplifier	FIT	SCU-18F	180077	2022-08-16
Active magnetic loop antenna	SCHWARZBECK	FMZB1519B	00080	2022-08-20
Trilog-Broadband antenna	SCHWARZBECK	VULB9168	0945	2021-12-08

2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table.

Parameter	Uncertainty
Radio Frequency	$\pm 1 \times 10^{-7}$
RF Power (conducted)	± 2.5 dB
Radiated Emission of Transmitter, valid up to 26.5 GHz	± 6 dB
Radiated Emission of Receiver, valid up to 26.5 GHz	± 6 dB
Conducted Emission, (9kHz to 150kHz)/(150kHz to 30MHz)	± 3.70 dB / ± 3.30 dB
Radiated Emission (3m SAC), 30MHz to 1000MHz	± 4.52 dB
Radiated Emission (3m SAC), above 1000MHz	± 4.37 dB
Temperature	± 1 °C
Humidity	± 5 %
Voltage (DC)	± 1 %
Voltage (AC, <10kHz)	± 2 %

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A & B of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) Co., Ltd.. file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

The TÜV Rheinland (Shenzhen) Co., Ltd. Test facility located at 362 Huanguan Road Middle Longhua District, Shenzhen 518110 People's Republic of China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3 General Product Information

3.1 Product Function and Intended Use

The product is a USB dongle for Xbox, which supports 2.4GHz wireless technology.

According to the declaration of the applicant, the electrical circuit design, PCB layout and construction Design are identical for all models, only the model No. is different.

For details refer to the User Manual, Technical Description and Circuit Diagram.

3.2 Ratings and System Details

Table 2: Technical Specification of EUT

General Information of EUT	Value
Kind of Equipment	Chat Pad Controller Keyboard for Xbox (Dongle)
Type Designation	NS-XB1CHATPAD, NS-XB1CHATPAD-C
Trademark	INSIGNIA
FCC ID	WP85I02001V
IC	8632A-5I0200V
HVIN	5I02001
Operating Voltage	DC 5.0V via USB port
Testing Voltage	DC 5.0V
Technical Specification of 2.4GHz	
Frequency Range	2402 - 2479 MHz
Type of Modulation	GFSK
Channel Number	16 channels
Antenna Type	Chip antenna
Antenna Gain	0dBi

Table 3: RF Channel and Frequency of 2.4GHz

RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
1	2402	5	2423	9	2446	13	2468
2	2408	6	2428	10	2451	14	2474
3	2419	7	2433	11	2456	15	2478
4	2421	8	2437	12	2460	16	2479

Test frequencies are lowest channel: 2402 MHz, middle channel: 2437 MHz and highest channel: 2479 MHz

3.3 Independent Operation Modes

The basic operation modes are:

- A. On, 2.4GHz transmitting mode
 - 1. Low channel
 - 2. Middle channel
 - 3. High channel
- B. On, Wireless connecting mode
- C. On, Normal operation mode
- D. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- Rating Label

- User Manual

4 Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

Radio Spectrum: The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All tests were performed according to the procedures in ANSI C63.10: 2013 and ANSI C63.4: 2014.

According to clause 3.1, all tests were performed on model NS-XB1CHATPAD in this report.

4.3 Special Accessories and Auxiliary Equipment

Table 4: Auxiliary Equipment Used during Test

Description	Manufacturer	Model	S/N	Rating
Laptop	Lenovo	T480	PF-16A6N8	N/A
Keyboard	ZEN Factory Group (Asia) Limited	NS-XB1CHATPAD	N/A	DC 3.3V by battery

4.4 Countermeasures to Achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF).

No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test (Below 30MHz)

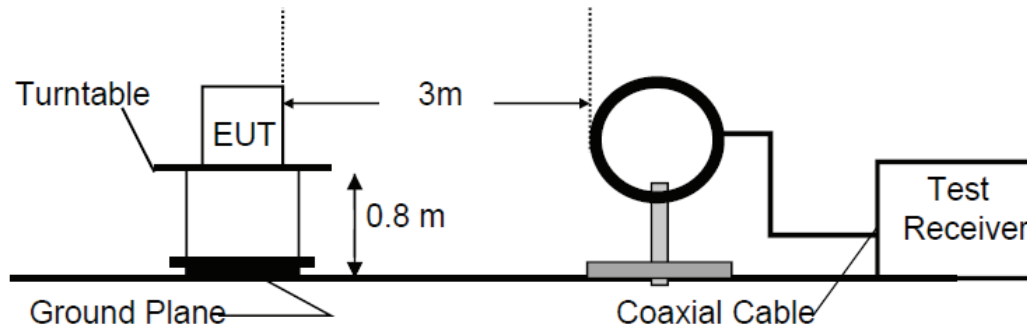


Diagram of Measurement Configuration for Radiation Test (Below 1GHz)

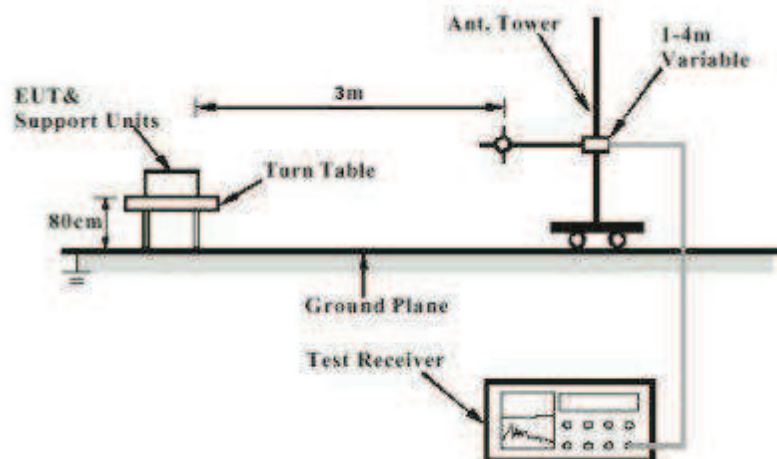


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

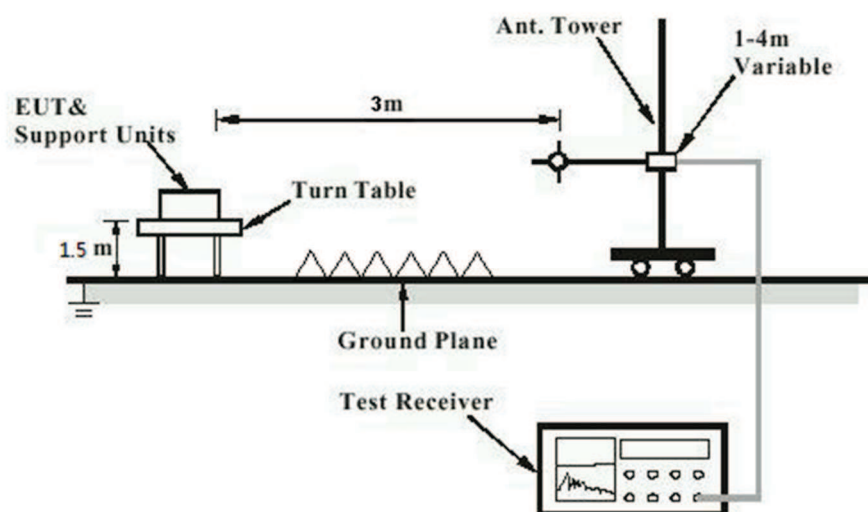
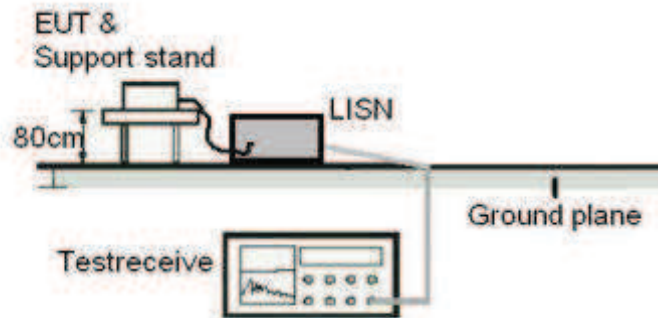


Diagram of Measurement Equipment Configuration for Mains Conduction Measurement



5 Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT:**Pass****Test Specification**

Test standard : FCC Part 15.247(b)(4) and Part 15.203
RSS-Gen Clause 6.8

According to the manufacturer declared, the EUT has an internal antenna, the directional gain of antenna is 0 dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Therefore the EUT is considered sufficient to comply with the provision.

Refer to EUT Photo for further details.

5.1.2 Fundamental & Harmonics Radiated Emission

RESULT:**Pass****Test Specification**

Test standard	: FCC Part 15.249(a) RSS-210 Issue 10 B.10
Basic standard	: ANSI C63.10: 2013 RSS-210 Issue 10 B.10(a) & Table A2
Limits	: Refer to FCC Part 15.249(a) & 15.209(a)
Kind of test site	: 3m Semi-anechoic Chamber

Test Setup

Date of testing	: 2021-08-16 ~ 2021-08-30
Input voltage	: DC 5.0V
Operation mode	: A
Test channel	: Low / Middle / High
Ambient temperature	: 22 °C
Relative humidity	: 50 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix B.

5.1.3 20dB Bandwidth

RESULT:**Pass****Test Specification**

Test standard : FCC Part 15.215
RSS-Gen clause 6.7
Basic standard : ANSI C63.10: 2013
Kind of test site : Shielded Room

Test Setup

Date of testing : 2021-09-02
Input voltage : DC 5.0V
Operation mode : A
Test channel : Low / Middle / High
Ambient temperature : 22 °C
Relative humidity : 50 %
Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix B.

Table 5: Test Result of 20dB Bandwidth

Test Channel (MHz)	Test Channel Frequency (MHz)	20dB Bandwidth (MHz)	Verdict
Low Channel	2402	1.081	PASS
Middle Channel	2437	1.077	
High Channel	2479	1.085	

5.1.4 99% Bandwidth

RESULT:**Pass****Test Specification**

Test standard : RSS-Gen clause 6.7
Basic standard : ANSI C63.10: 2013
Kind of test site : Shielded Room

Test Setup

Date of testing : 2021-09-02
Input voltage : DC 5.0V
Operation mode : A
Test channel : Low / Middle / High
Ambient temperature : 22 °C
Relative humidity : 50 %
Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix B.

Table 6: Test Result of 99% Bandwidth

Test Channel (MHz)	Test Channel Frequency (MHz)	99% Bandwidth (MHz)	Verdict
Low Channel	2402	1.051	PASS
Middle Channel	2437	1.046	
High Channel	2479	1.055	

5.1.5 Radiated Spurious Emission & Band Edge

RESULT:**Pass****Test Specification**

Test standard	: FCC Part 15.249(a) RSS-210 Issue 10 B.10
Basic standard	: ANSI C63.10: 2013
Limits	: Refer to FCC Part 15.249(a) & 15.209(a) RSS-210 Issue 10 B.10(a) & Table A2
Kind of test site	: 3m Semi-anechoic Chamber

Test Setup

Date of testing	: 2021-08-16 ~ 2021-08-30
Input voltage	: DC 5.0V
Operation mode	: A
Test channel	: Low / Middle / High
Ambient temperature	: 25 °C
Relative humidity	: 56 %
Atmospheric pressure	: 101 kPa

Testing was carried out within frequency range 9kHz to the tenth harmonics. Only the worst case spurious emissions configuration of the each mode were reported.

For the measurement records, refer to the appendix B.

5.1.6 Conducted Emission on AC Mains

RESULT:**Pass****Test Specification**

Test standard	: FCC Part 15.207(a) & FCC Part 15.107(a) RSS-Gen clause 8.8 & ICES-003 Issue 6
Basic standard	: ANSI C63.10: 2013 & ANSI C63.4: 2014
Frequency range	: 0.15 – 30MHz
Limits	: FCC Part 15.207(a) & FCC Part 15.107(a) RSS-Gen clause 8.8 & ICES-003 Issue 6 Table 2
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2021-08-16 ~ 2021-08-30
Input voltage	: DC 5.0V
Operation mode	: B, C
Ambient temperature	: 22 °C
Relative humidity	: 54 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix B & C.

5.1.7 Radiated Emission

RESULT:**Pass****Test Specification**

Test standard	: FCC Part 15.109(a) ICES-003 Issue 6
Basic standard	: ANSI C63.4: 2014
Frequency range	: 30 - 6000MHz
Classification	: Class B
Limits	: FCC Part 15.109(a) ICES-003 Issue 6 Table 5 & Table 7
Kind of test site	: 3m Semi-anechoic Chamber

Test Setup

Date of testing	: 2021-08-16 ~ 2021-08-30
Input voltage	: DC 5.0V
Operation mode	: C
Ambient temperature	: 22 °C
Relative humidity	: 54 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix C

6 Photographs of the Test Set-Up

For photographs of the test set-up, refer to the appendix A.

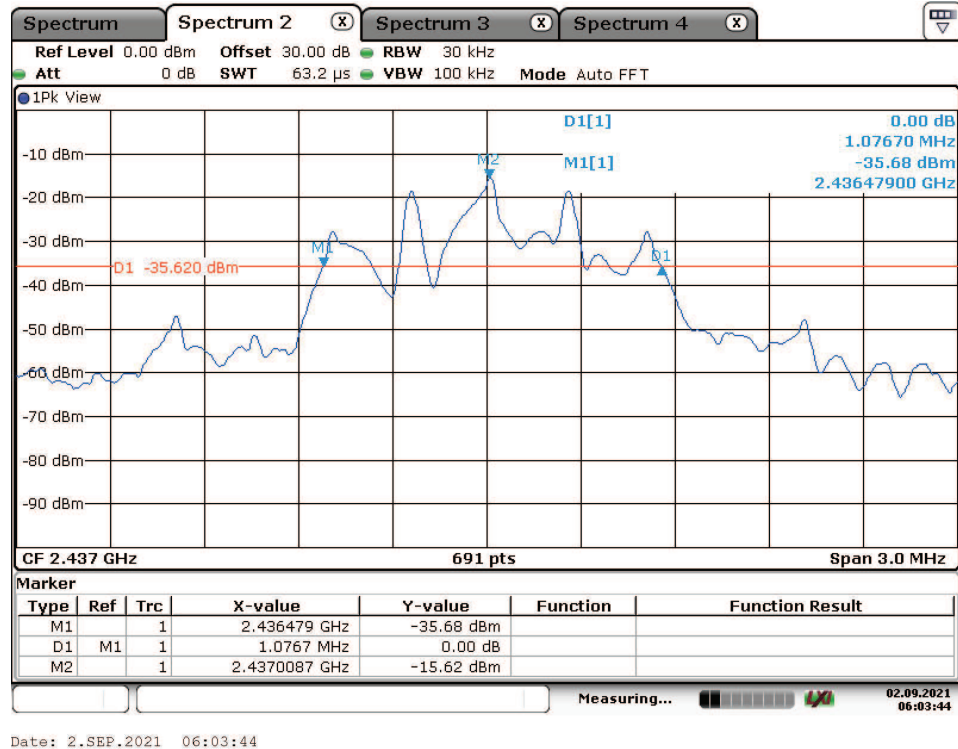
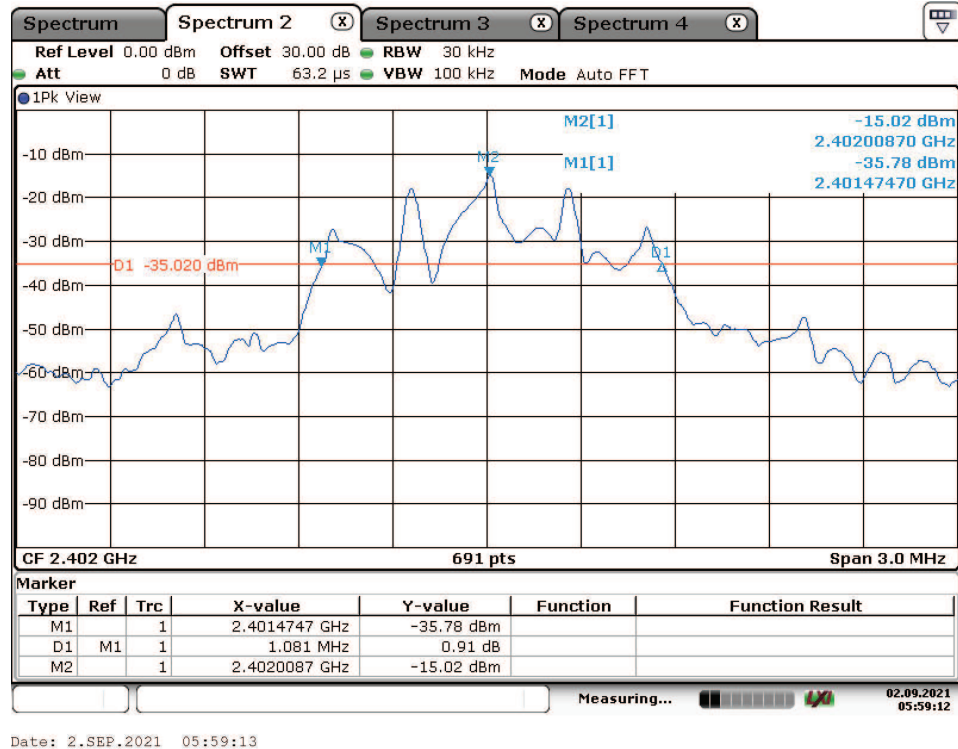
7 List of Tables

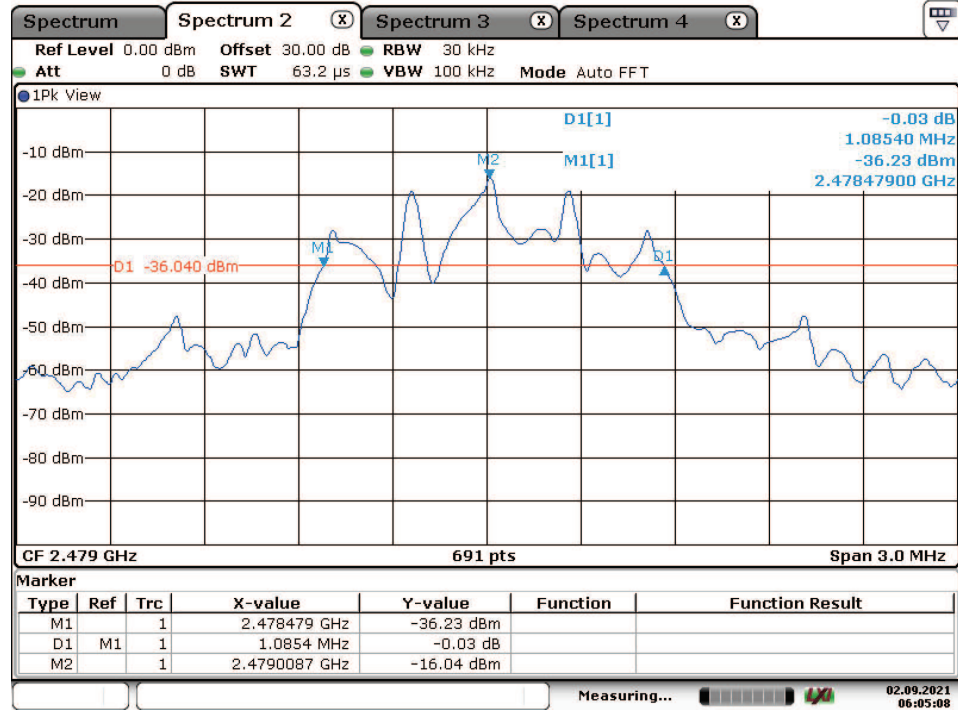
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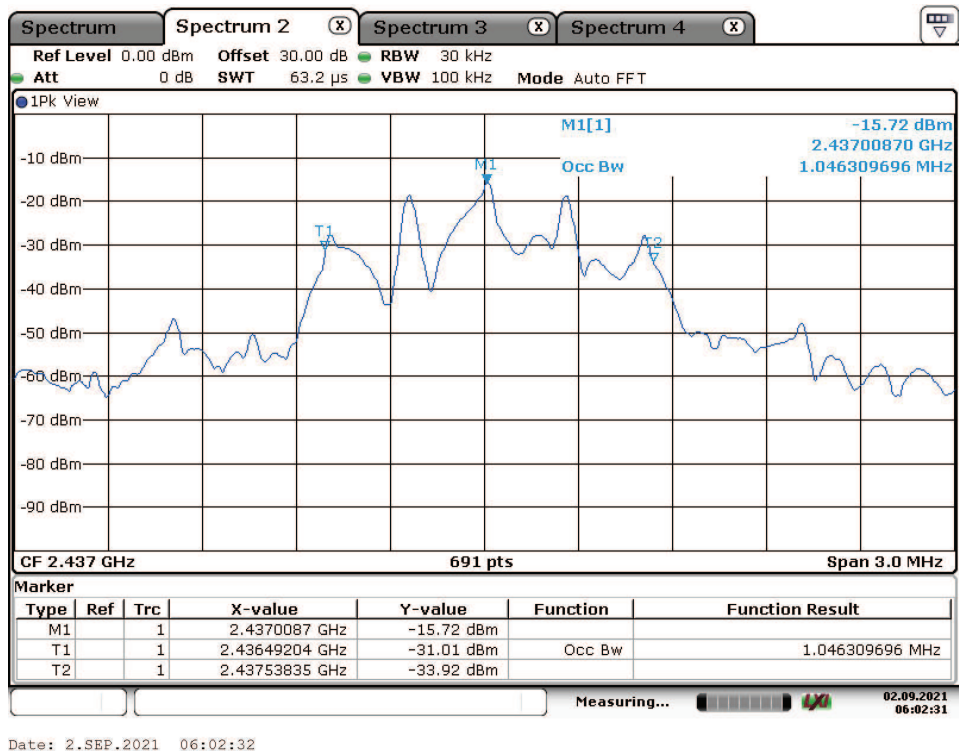
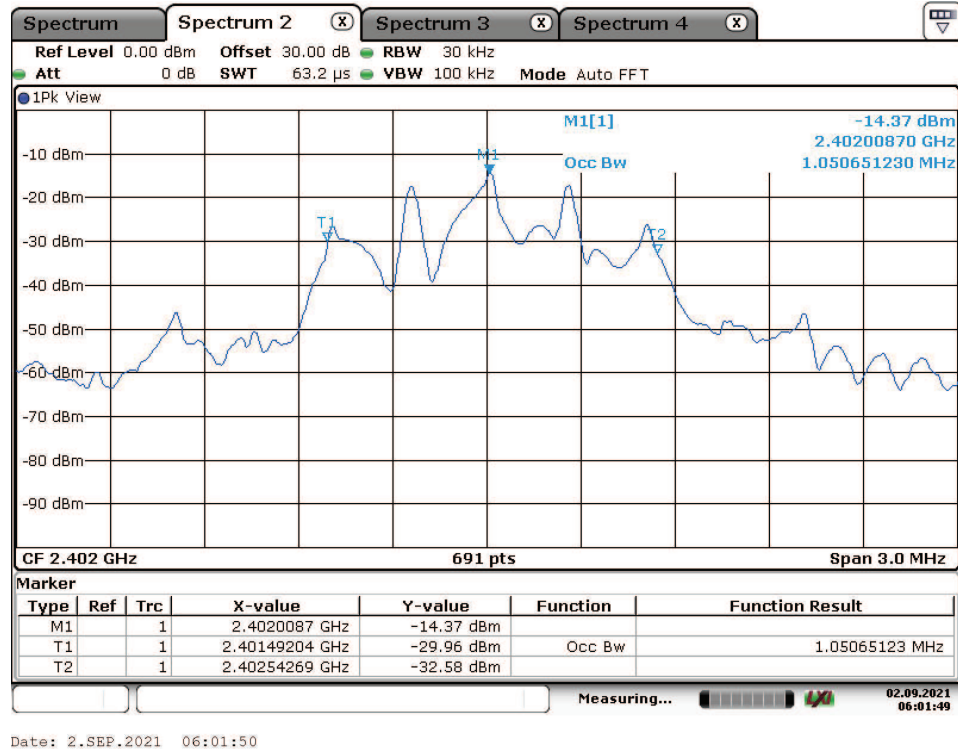
Appendix B.1: Test Results of 20dB Bandwidth

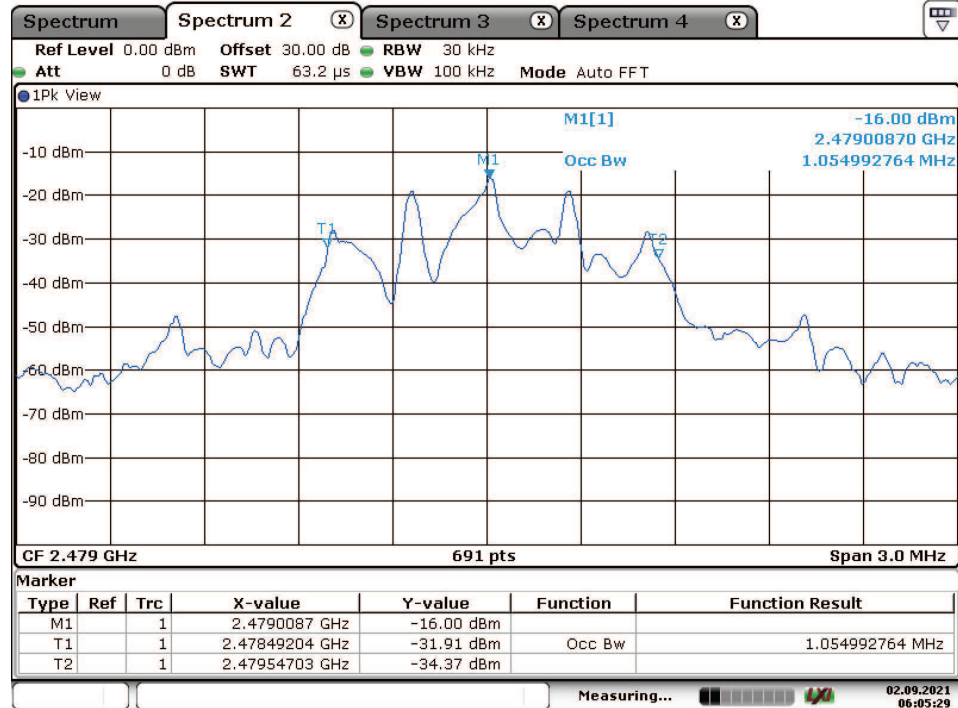




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Appendix B.2: Test Results of 99% Bandwidth





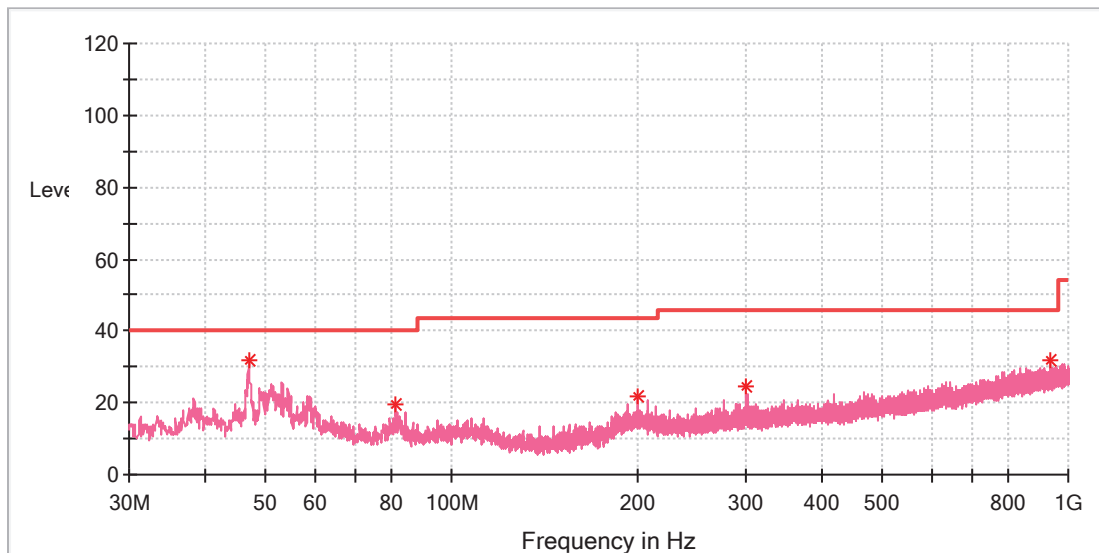
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Note: Testing was carried out within frequency range 9kHz to the tenth harmonics. The measurement results below 30MHz and 18GHz -26.5GHz were greater than 20dB below the limit, so only the radiated spurious emissions from 30MHz to 18GHz were reported.

Appendix B.3: Fundamental & Harmonics Radiated Emission 30MHz - 1GHz

EUT Information

EUT Name:	Chat Pad Controller Keyboard for Xbox
Model:	NS-XB1CHATPAD
Test Mode:	Low Channel
Test Voltage::	DC 5V from USB
Remark:	Temp 22 Humi:50%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

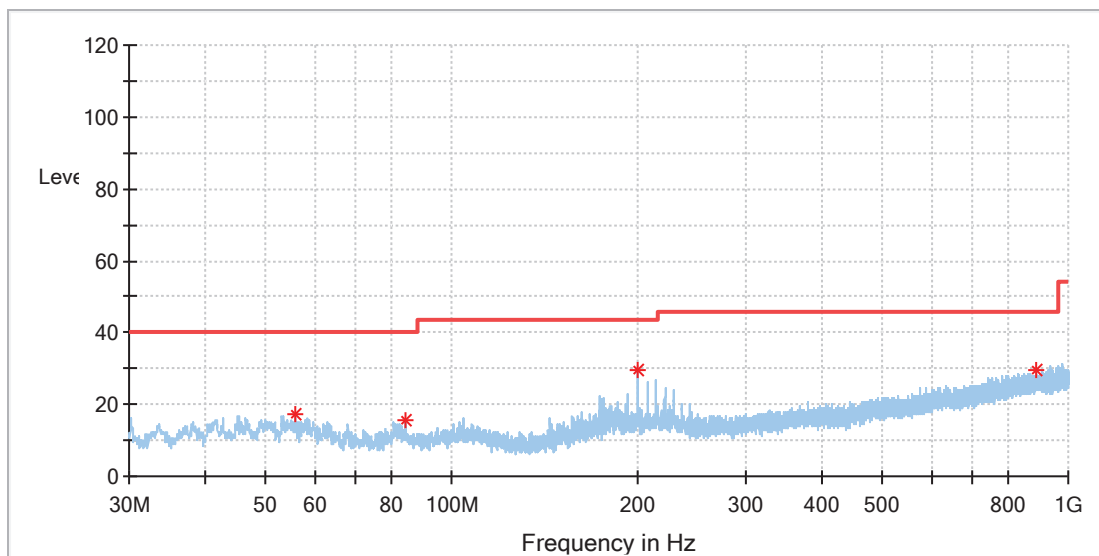


Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
46.878000	31.54	40.00	8.46	100.0	V	0.0	-18.5
81.264500	19.29	40.00	20.71	100.0	V	227.0	-23.2
200.332000	21.74	43.50	21.76	100.0	V	310.0	-18.9
300.581500	24.42	46.00	21.58	100.0	V	302.0	-16.3
937.532000	31.74	46.00	14.26	100.0	V	235.0	-4.6

EUT Information

EUT Name: Chat Pad Controller Keyboard for Xbox
Model: NS-XB1CHATPAD
Test Mode: Low Channel
Test Voltage:: DC 5V from USB
Remark: Temp 22 Humi:50%
Test Standard: FCC 15.249
Tested By: Kei Zhang
Reviewed By: Terry Yin

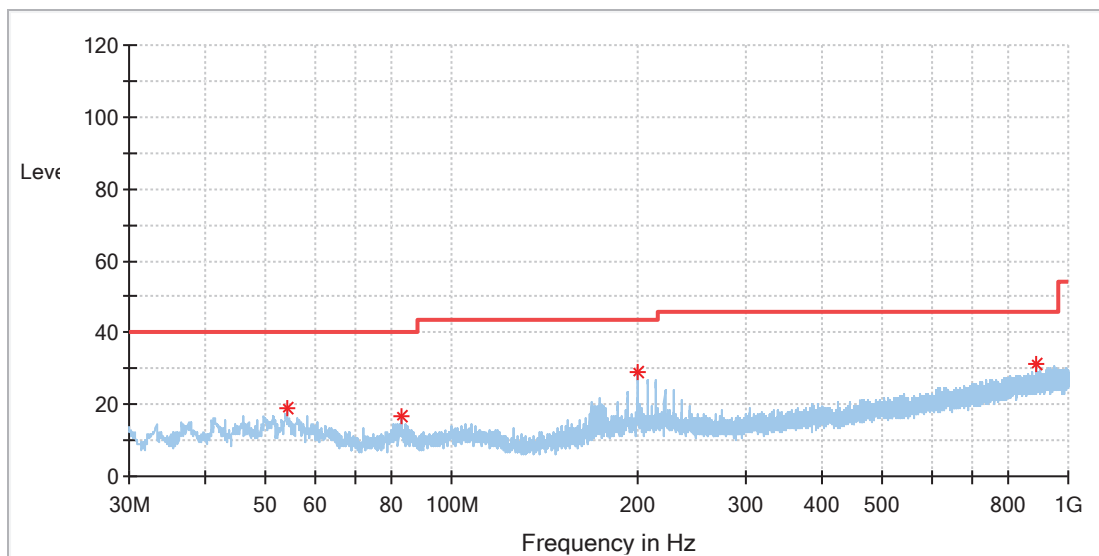


Critical Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
55.802000	17.27	40.00	22.73	100.0	H	0.0	-18.5
83.932000	15.66	40.00	24.34	100.0	H	310.0	-22.6
200.380500	29.50	43.50	14.00	100.0	H	268.0	-18.9
887.916500	29.56	46.00	16.44	100.0	H	69.0	-5.1

EUT Information

EUT Name:	Chat Pad Controller Keyboard for Xbox
Model:	NS-XB1CHATPAD
Test Mode:	High Channel
Test Voltage::	DC 5V from USB
Remark:	Temp 22 Humi:50%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

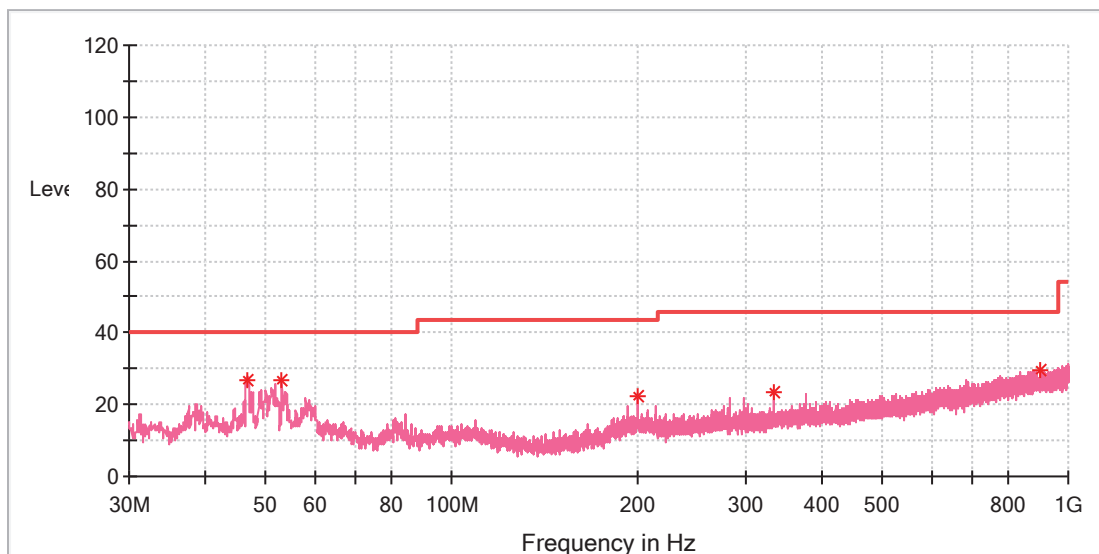


Critical Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
54.104500	18.84	40.00	21.16	100.0	H	0.0	-18.4
83.010500	16.57	40.00	23.43	100.0	H	307.0	-22.8
200.380500	29.08	43.50	14.42	100.0	H	223.0	-18.9
887.868000	31.25	46.00	14.75	100.0	H	173.0	-5.1

EUT Information

EUT Name: Chat Pad Controller Keyboard for Xbox
Model: NS-XB1CHATPAD
Test Mode: High Channel
Test Voltage:: DC 5V from USB
Remark: Temp 22 Humi:50%
Test Standard: FCC 15.249
Tested By: Kei Zhang
Reviewed By: Terry Yin



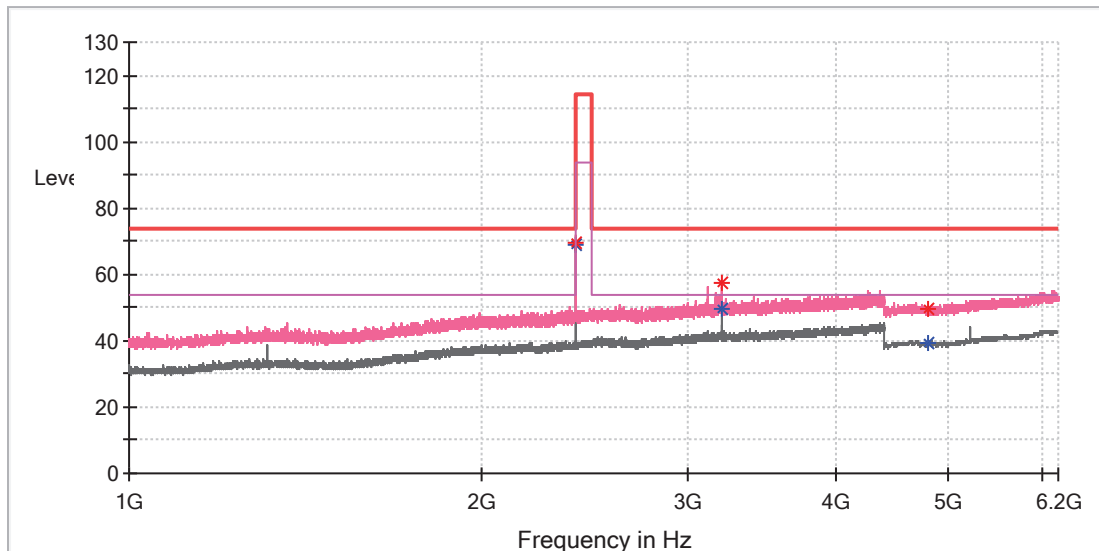
Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
46.490000	26.92	40.00	13.08	100.0	V	253.0	-18.6
53.086000	26.62	40.00	13.38	100.0	V	128.0	-18.4
200.429000	22.50	43.50	21.00	100.0	V	319.0	-18.9
332.446000	23.50	46.00	22.50	100.0	V	227.0	-15.3
897.810500	29.80	46.00	16.20	100.0	V	16.0	-5.0

1GHz - 6.2GHz

EUT Information

EUT Name:	Chat Pad Controller Keyboard for Xbox
Model:	NS-XB1CHATPAD
Test Mode:	Low Channel
Test Voltage::	DC 5V from USB
Remark:	Temp 22 Humi:50%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

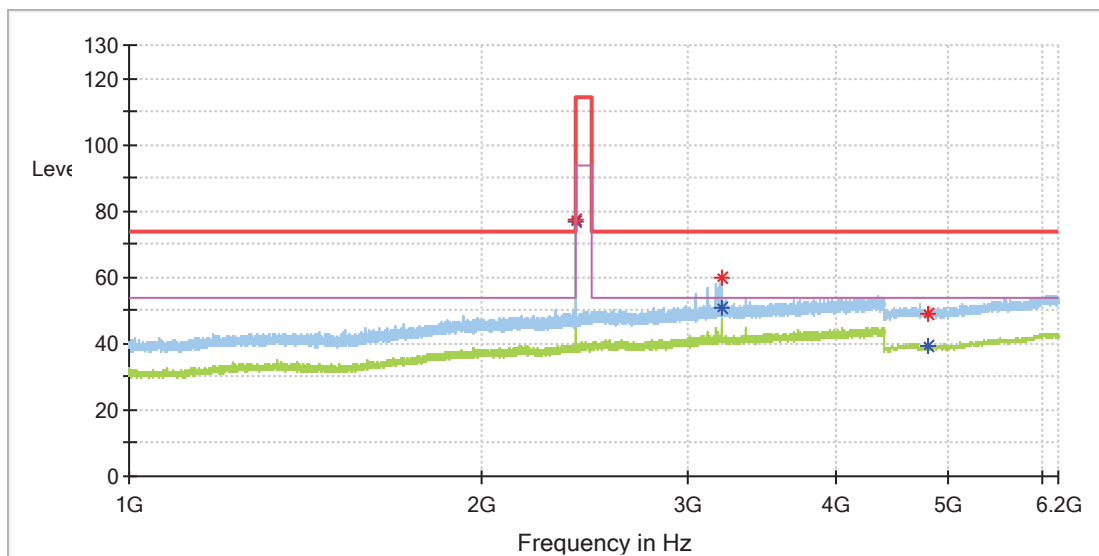


Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2400.970000	---	68.71	94.00	25.29	100.0	V	248.0	7.0
2401.310000	69.61	---	114.00	44.39	100.0	V	248.0	7.0
3201.670000	57.63	---	74.00	16.37	100.0	V	263.0	8.6
3202.010000	---	49.29	54.00	4.71	100.0	V	263.0	8.6
4800.500000	49.80	---	74.00	24.20	100.0	V	0.0	11.8
4801.500000	---	39.13	54.00	14.87	100.0	V	316.0	11.8

EUT Information

EUT Name:	Chat Pad Controller Keyboard for Xbox
Model:	NS-XB1CHATPAD
Test Mode:	Low Channel
Test Voltage::	DC 5V from USB
Remark:	Temp 22 Humi:50%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

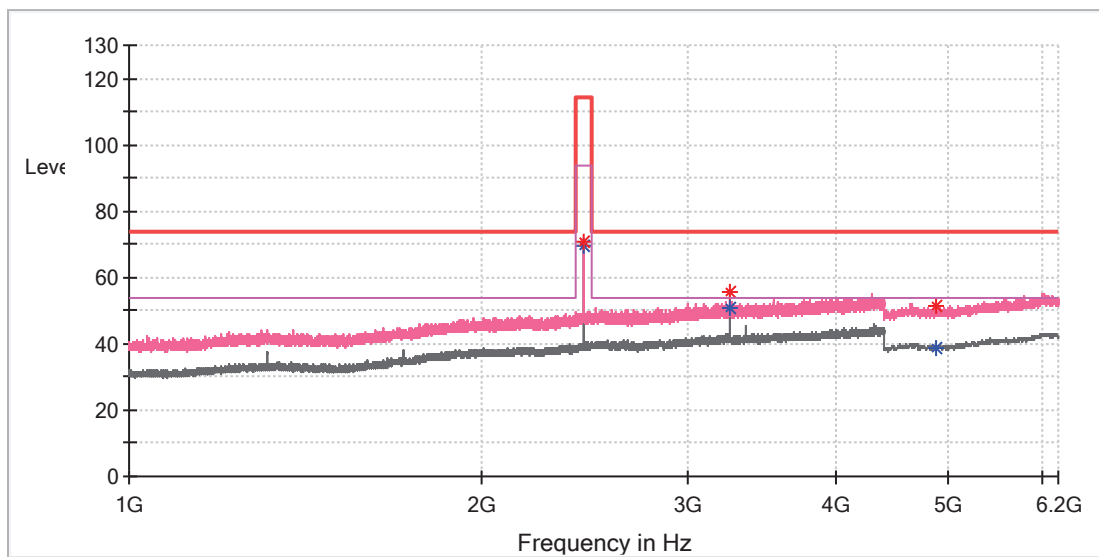


Critical Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2400.970000	77.15	---	114.00	36.85	100.0	H	244.0	7.0
2400.970000	---	76.51	94.00	17.49	100.0	H	244.0	7.0
3201.330000	60.02	---	74.00	13.98	100.0	H	71.0	8.6
3202.180000	---	50.67	54.00	3.33	100.0	H	71.0	8.6
4804.000000	48.85	---	74.00	25.15	100.0	H	244.0	11.8
4806.500000	---	39.27	54.00	14.73	100.0	H	158.0	11.8

EUT Information

EUT Name: Chat Pad Controller Keyboard for Xbox
Model: NS-XB1CHATPAD
Test Mode: Middle Channel
Test Voltage:: DC 5V from USB
Remark: Temp 22 Humi:50%
Test Standard: FCC 15.249
Tested By: Kei Zhang
Reviewed By: Terry Yin

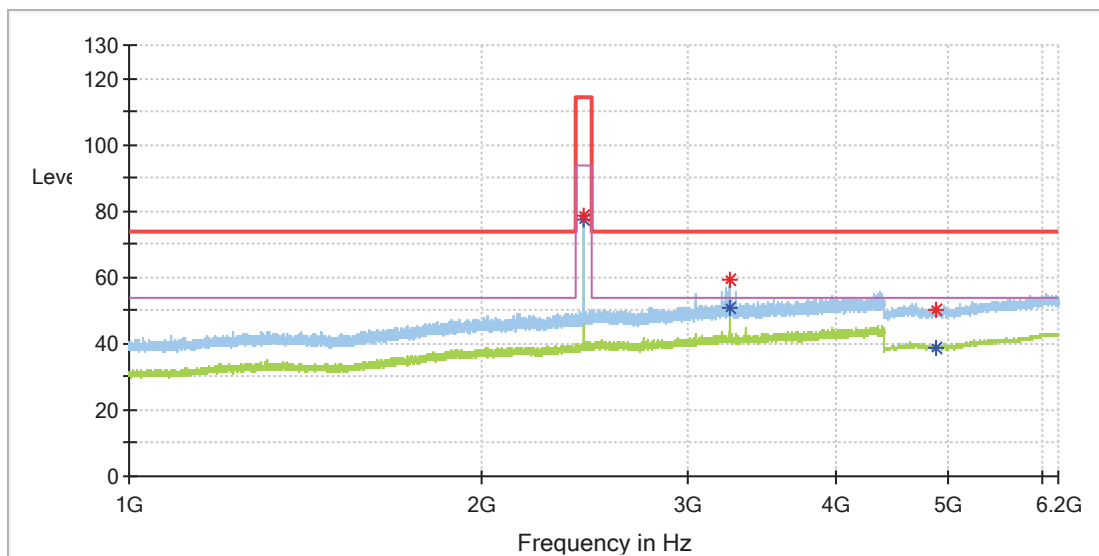


Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2440.070000	---	69.73	94.00	24.27	100.0	V	258.0	7.4
2440.240000	70.58	---	114.00	43.42	100.0	V	258.0	7.4
3253.520000	---	50.57	54.00	3.43	100.0	V	241.0	8.5
3253.690000	55.45	---	74.00	18.55	100.0	V	289.0	8.5
4878.000000	51.31	---	74.00	22.69	100.0	V	248.0	11.8
4880.500000	---	38.61	54.00	15.39	100.0	V	8.0	11.8

EUT Information

EUT Name:	Chat Pad Controller Keyboard for Xbox
Model:	NS-XB1CHATPAD
Test Mode:	Middle Channel
Test Voltage::	DC 5V from USB
Remark:	Temp 22 Humi:50%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

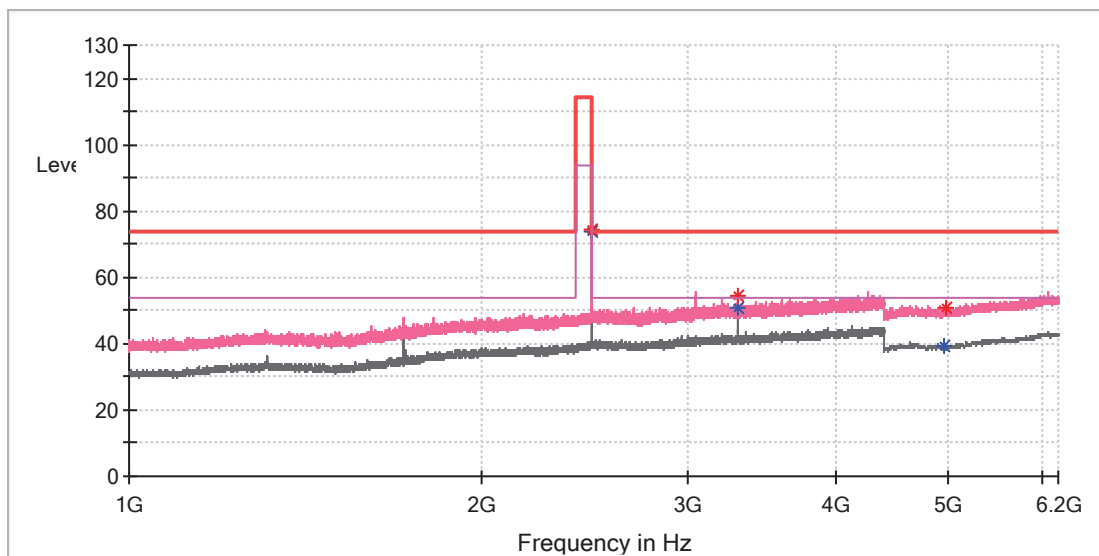


Critical Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2440.070000	---	77.69	94.00	16.31	100.0	H	238.0	7.4
2440.240000	78.39	---	114.00	35.61	100.0	H	238.0	7.4
3252.670000	---	50.92	54.00	3.08	100.0	H	172.0	8.5
3253.180000	59.55	---	74.00	14.45	100.0	H	71.0	8.5
4878.500000	50.12	---	74.00	23.88	100.0	H	161.0	11.8
4880.500000	---	38.41	54.00	15.59	100.0	H	80.0	11.8

EUT Information

EUT Name:	Chat Pad Controller Keyboard for Xbox
Model:	NS-XB1CHATPAD
Test Mode:	High Channel
Test Voltage::	DC 5V from USB
Remark:	Temp 22 Humi:50%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

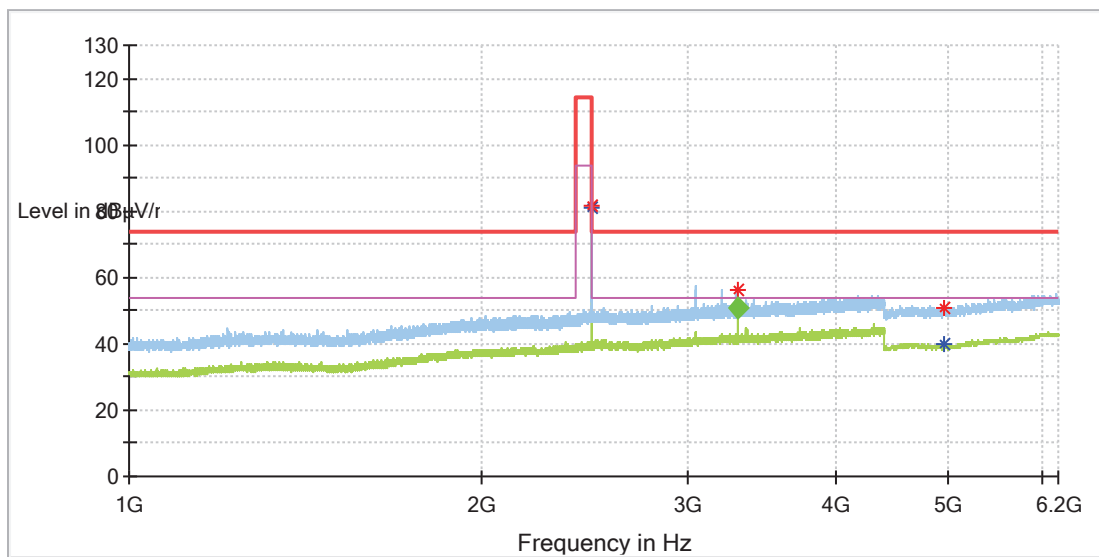


Critical Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2479.020000	---	73.59	94.00	20.41	100.0	V	289.0	7.4
2479.190000	74.50	---	114.00	39.50	100.0	V	289.0	7.4
3306.390000	54.40	---	74.00	19.60	100.0	V	307.0	8.6
3306.900000	---	50.54	54.00	3.46	100.0	V	307.0	8.6
4957.500000	---	39.34	54.00	14.66	100.0	V	112.0	11.8
4966.500000	50.64	---	74.00	23.36	100.0	V	60.0	11.8

EUT Information

EUT Name:	Chat Pad Controller Keyboard for Xbox
Model:	NS-XB1CHATPAD
Test Mode:	High Channel
Test Voltage::	DC 5V from USB
Remark:	Temp 22 Humi:50%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



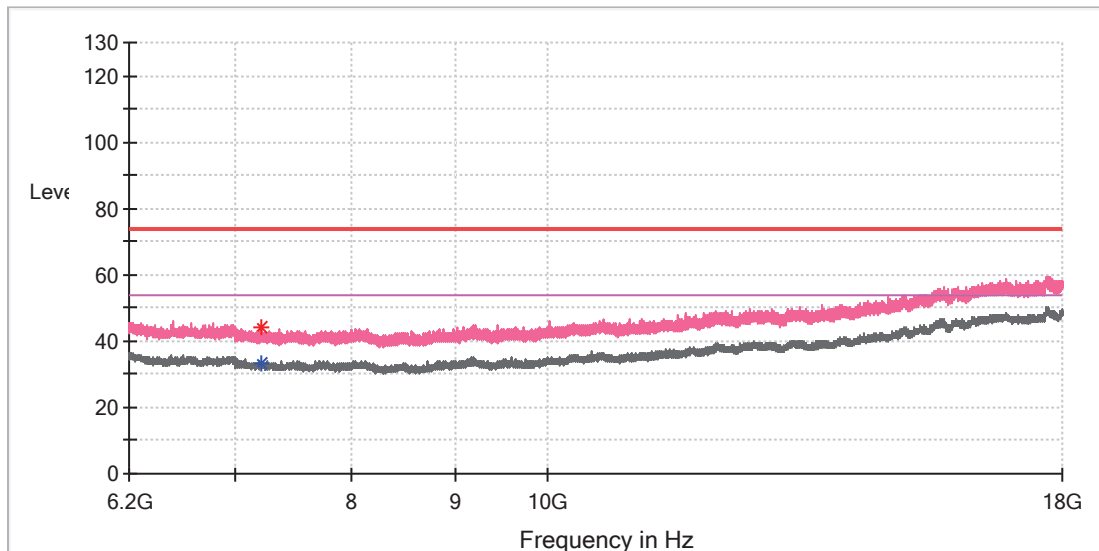
Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2479.020000	81.79	---	114.00	32.21	100.0	H	257.0	7.4
2479.020000	---	81.25	94.00	12.75	100.0	H	257.0	7.4
3306.730000	56.32	---	74.00	17.68	100.0	H	76.0	8.6
4959.500000	50.55	---	74.00	23.45	100.0	H	155.0	11.8
4961.000000	---	40.03	54.00	13.97	100.0	H	91.0	11.8

6.2GHz - 18GHz

EUT Information

EUT Name:	Chat Pad Controller Keyboard for Xbox
Model:	NS-XB1CHATPAD
Test Mode:	Low Channel
Test Voltage::	DC 5V from USB
Remark:	Temp 22 Humi:50%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

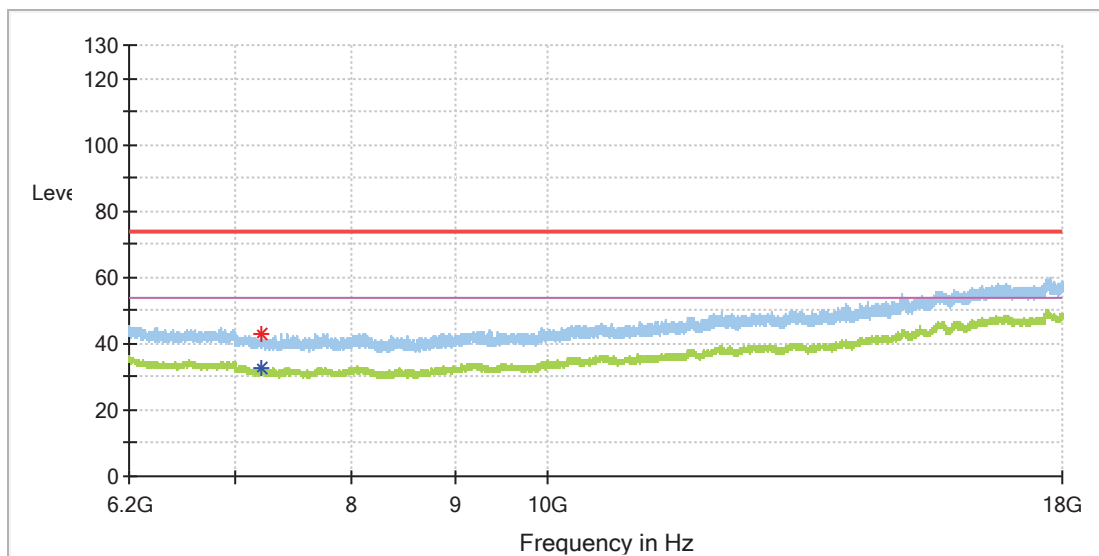


Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7210.866667	43.90	---	74.00	30.10	100.0	V	98.0	8.7
7210.866667	---	33.52	54.00	20.48	100.0	V	98.0	8.7

EUT Information

EUT Name:	Chat Pad Controller Keyboard for Xbox
Model:	NS-XB1CHATPAD
Test Mode:	Low Channel
Test Voltage::	DC 5V from USB
Remark:	Temp 22 Humi:50%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

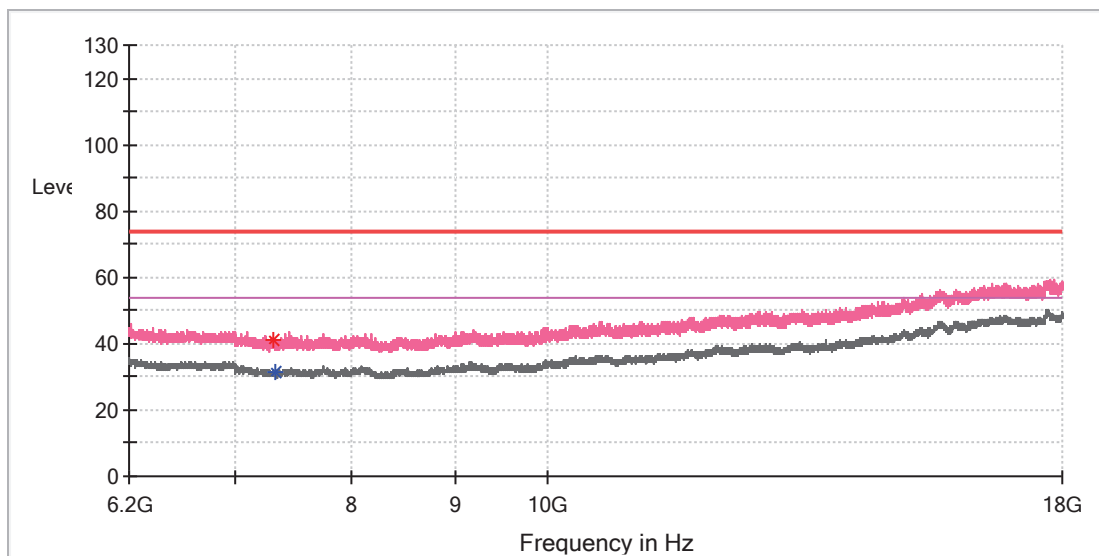


Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7212.341667	---	32.58	54.00	21.42	100.0	H	260.0	8.7
7214.308333	43.14	---	74.00	30.86	100.0	H	176.0	8.7

EUT Information

EUT Name: Chat Pad Controller Keyboard for Xbox
Model: NS-XB1CHATPAD
Test Mode: Middle Channel
Test Voltage:: DC 5V from USB
Remark: Temp 22 Humi:50%
Test Standard: FCC 15.249
Tested By: Kei Zhang
Reviewed By: Terry Yin

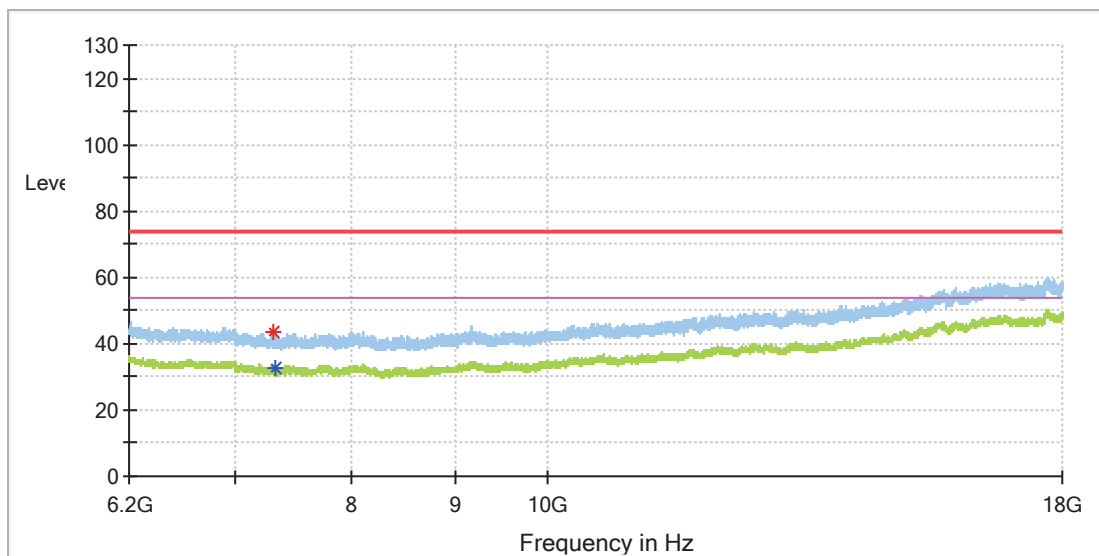


Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7317.558333	41.15	---	74.00	32.85	100.0	V	0.0	8.2
7320.016667	---	31.30	54.00	22.70	100.0	V	222.0	8.2

EUT Information

EUT Name:	Chat Pad Controller Keyboard for Xbox
Model:	NS-XB1CHATPAD
Test Mode:	Middle Channel
Test Voltage::	DC 5V from USB
Remark:	Temp 22 Humi:50%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

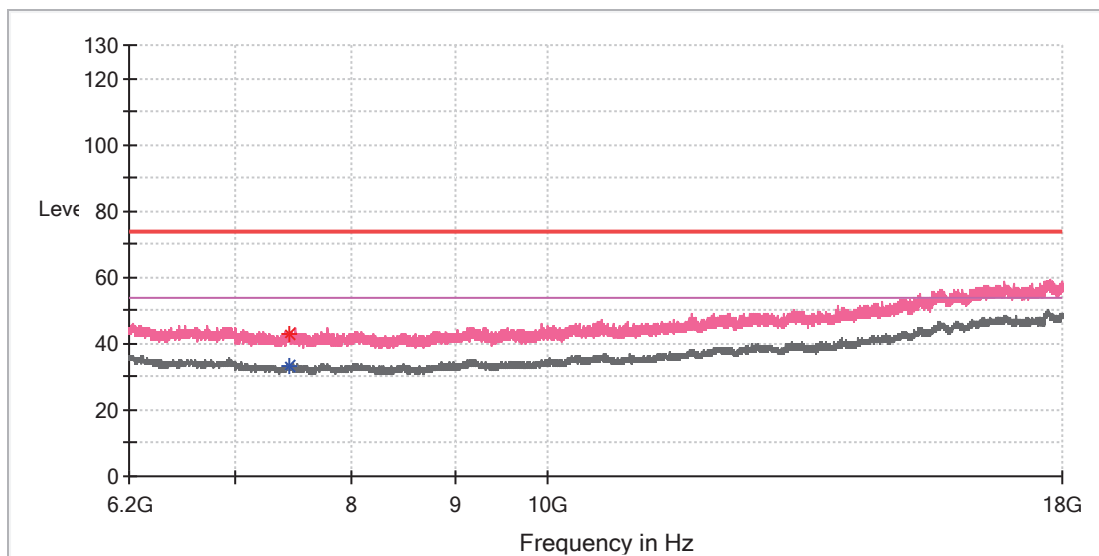


Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7313.133333	43.30	---	74.00	30.70	100.0	H	12.0	8.2
7319.525000	---	32.54	54.00	21.46	100.0	H	32.0	8.2

EUT Information

EUT Name:	Chat Pad Controller Keyboard for Xbox
Model:	NS-XB1CHATPAD
Test Mode:	High Channel
Test Voltage::	DC 5V from USB
Remark:	Temp 22 Humi:50%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

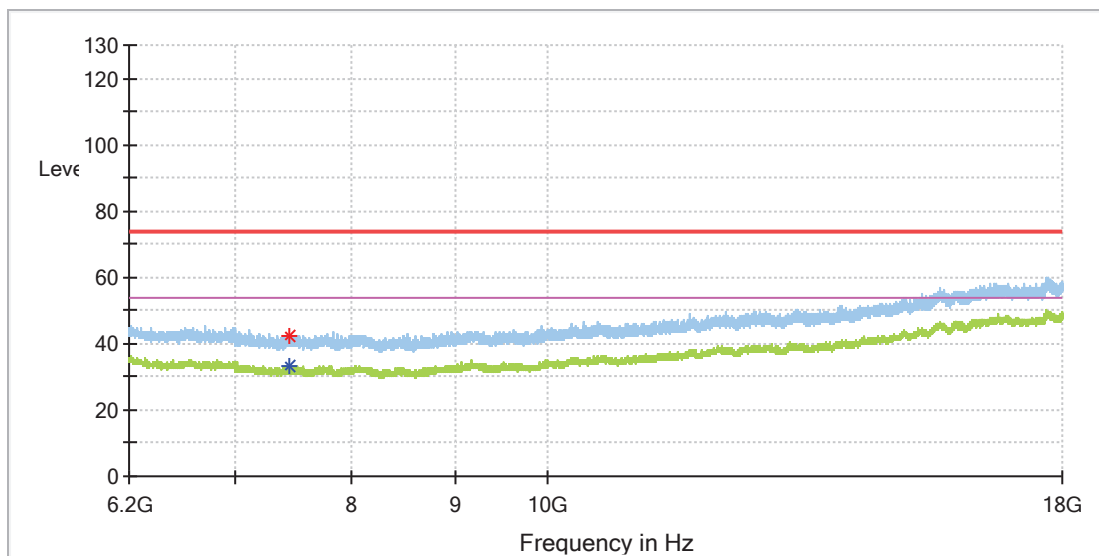


Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7439.000000	---	33.54	54.00	20.46	100.0	V	304.0	8.4
7439.983333	42.83	---	74.00	31.17	100.0	V	262.0	8.4

EUT Information

EUT Name:	Chat Pad Controller Keyboard for Xbox
Model:	NS-XB1CHATPAD
Test Mode:	High Channel
Test Voltage::	DC 5V from USB
Remark:	Temp 22 Humi:50%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



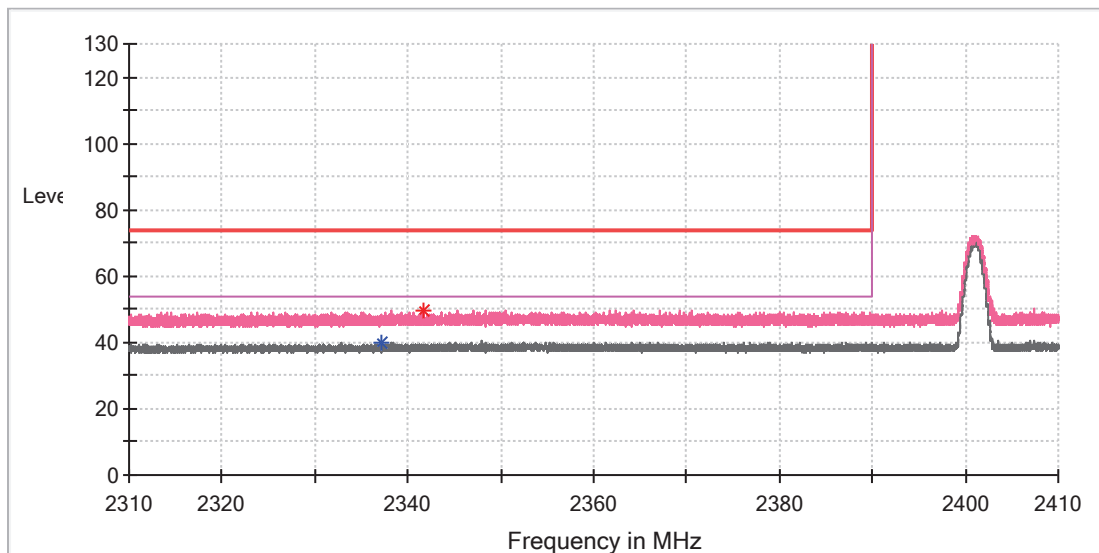
Critical Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7440.475000	42.35	---	74.00	31.65	100.0	H	37.0	8.4
7448.341667	---	33.24	54.00	20.76	100.0	H	59.0	8.5

Appendix B.4: Test Results of Radiated Emissions in Restricted Bands

EUT Information

EUT Name:	Chat Pad Controller Keyboard for Xbox
Model:	NS-XB1CHATPAD
Test Mode:	Low Channel
Test Voltage::	DC 5V from USB
Remark:	Temp 22 Humi:50%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

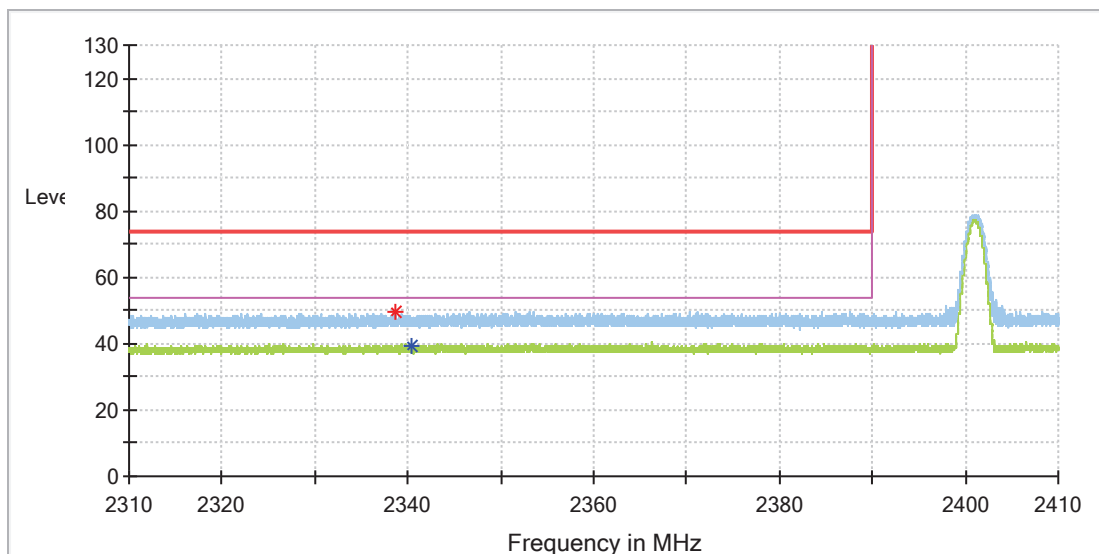


Critical Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2337.240000	---	40.08	54.00	13.92	100.0	V	73.0	6.8
2341.675000	49.78	---	74.00	24.22	100.0	V	73.0	6.8

EUT Information

EUT Name:	Chat Pad Controller Keyboard for Xbox
Model:	NS-XB1CHATPAD
Test Mode:	Low Channel
Test Voltage::	DC 5V from USB
Remark:	Temp 22 Humi:50%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

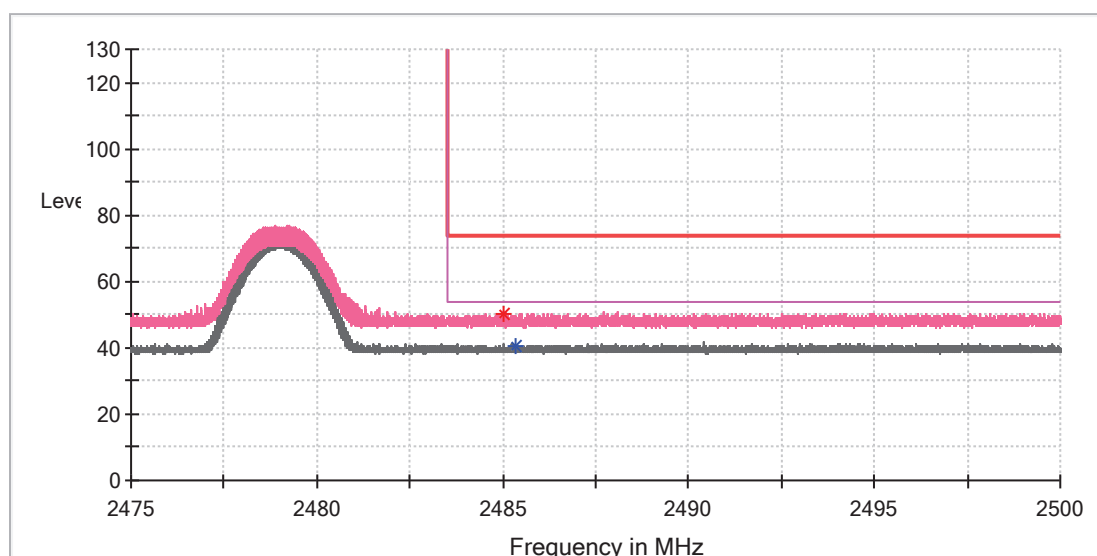


Critical Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2338.620000	49.29	---	74.00	24.71	100.0	H	5.0	6.8
2340.415000	---	39.31	54.00	14.69	100.0	H	158.0	6.8

EUT Information

EUT Name:	Chat Pad Controller Keyboard for Xbox
Model:	NS-XB1CHATPAD
Test Mode:	High Channel
Test Voltage::	DC 5V from USB
Remark:	Temp 22 Humi:50%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

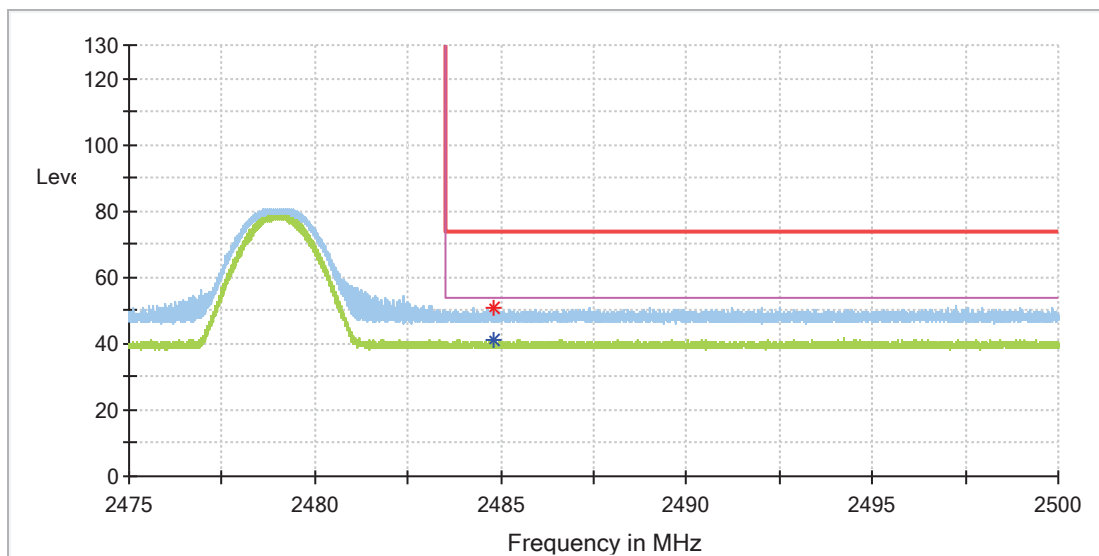


Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2485.012500	50.45	---	74.00	23.55	100.0	V	354.0	7.4
2485.331250	---	40.42	54.00	13.58	100.0	V	207.0	7.4

EUT Information

EUT Name:	Chat Pad Controller Keyboard for Xbox
Model:	NS-XB1CHATPAD
Test Mode:	High Channel
Test Voltage::	DC 5V from USB
Remark:	Temp 22 Humi:50%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



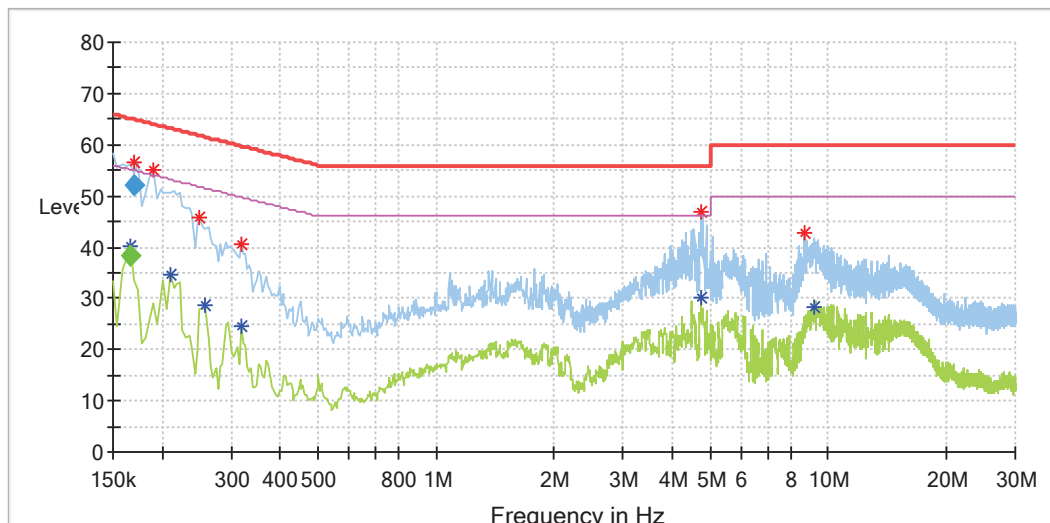
Critical Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2484.787500	---	41.39	54.00	12.61	100.0	H	356.0	7.4
2484.805000	50.86	---	74.00	23.14	100.0	H	177.0	7.4

Appendix B.5: Test Results of Conducted Emissions

EUT Information

EUT Name: Chat Pad Controller Keyboard for Xbox
Model: NS-XB1CHATPAD
Test mode: ON
Test Voltage: DC 5V from USB
Test By: Kevin Zhou
Review By: Gary Chen
Remark: SR2



Critical Freqs

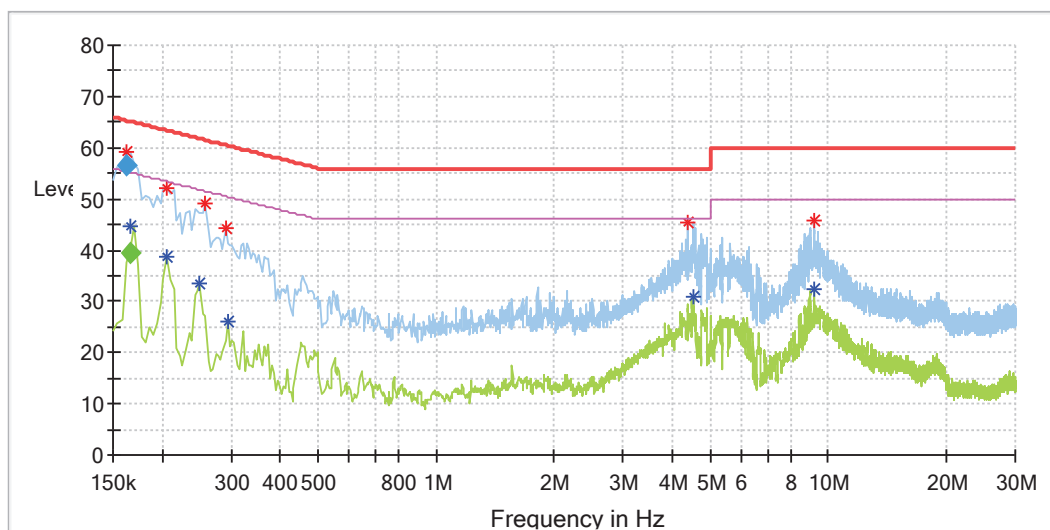
Frequency (MHz)	MaxPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)
0.165500	---	40.35	55.16	14.81	L1	9.9
0.169500	56.44	---	64.77	8.33	L1	9.9
0.190000	55.24	---	64.04	8.80	L1	9.9
0.210000	---	34.79	53.21	18.42	L1	9.9
0.250000	45.85	---	61.76	15.91	L1	9.9
0.258000	---	28.70	51.50	22.80	L1	9.9
0.318000	---	24.51	49.76	25.25	L1	9.9
0.318000	40.72	---	59.76	19.04	L1	9.9
4.762000	---	30.28	46.00	15.72	L1	10.2
4.762000	46.87	---	56.00	9.13	L1	10.2
8.698000	42.91	---	60.00	17.09	L1	10.3
9.186000	---	28.44	50.00	21.56	L1	10.3

Final Result

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.165500	---	38.33	55.18	16.85	1000.0	9.000	L1	9.9
0.169500	52.26	---	64.99	12.72	1000.0	9.000	L1	9.9

EUT Information

EUT Name: Chat Pad Controller Keyboard for Xbox
Model: NS-XB1CHATPAD
Test mode: ON
Test Voltage: DC 5V from USB
Test By: Kevin Zhou
Review By: Gary Chen
Remark: SR2



Critical Freqs

Frequency (MHz)	MaxPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)
0.161500	59.30	---	65.16	5.86	N	9.8
0.165500	---	44.76	54.96	10.20	N	9.8
0.206000	---	38.65	53.37	14.71	N	9.8
0.206000	52.17	---	63.37	11.20	N	9.8
0.250000	---	33.66	51.76	18.10	N	9.8
0.258000	48.98	---	61.50	12.52	N	9.8
0.290000	44.12	---	60.52	16.40	N	9.8
0.294000	---	26.21	50.41	24.20	N	9.8
4.402000	45.23	---	56.00	10.77	N	9.9
4.542000	---	30.75	46.00	15.25	N	9.9
9.186000	45.79	---	60.00	14.21	N	10.0
9.186000	---	32.29	50.00	17.71	N	10.0

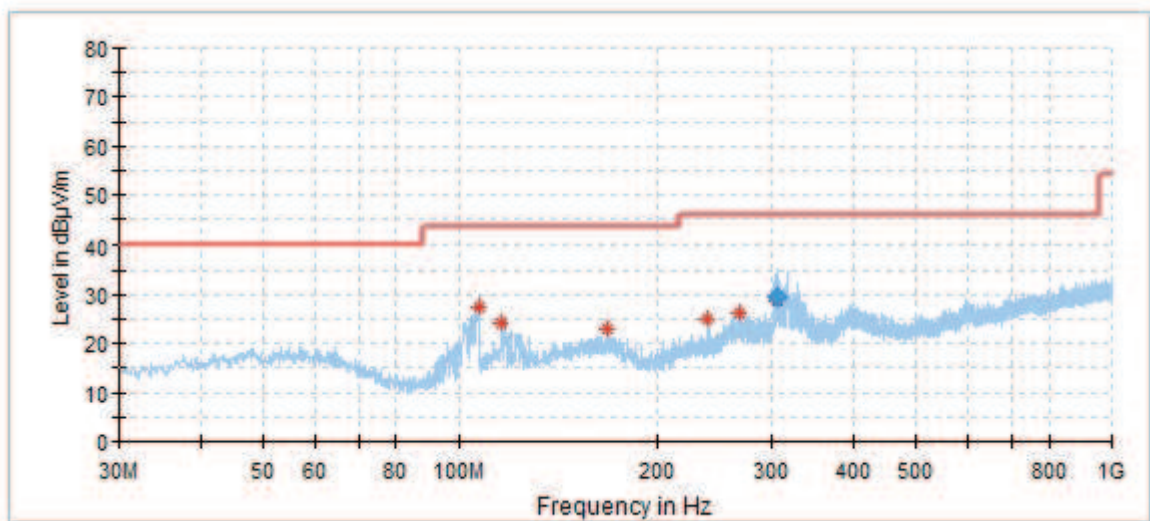
Final Result

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.161500	56.63	---	65.39	8.76	1000.0	9.000	N	9.8
0.165500	---	39.44	55.18	15.74	1000.0	9.000	N	9.8

Appendix B.6: Test Results of Radiated Emissions

EUT Information

EUT Name:	Chat Pad Controller Keyboard for Xbox
Model	NS-XB1CHATPAD
Test Mode:	ON
Test Voltage:	DC 5V from USB
Test By:	Kevin Zhou
Review By:	Gary Chen
Remark:	3m Chamber



Critical_Freqs

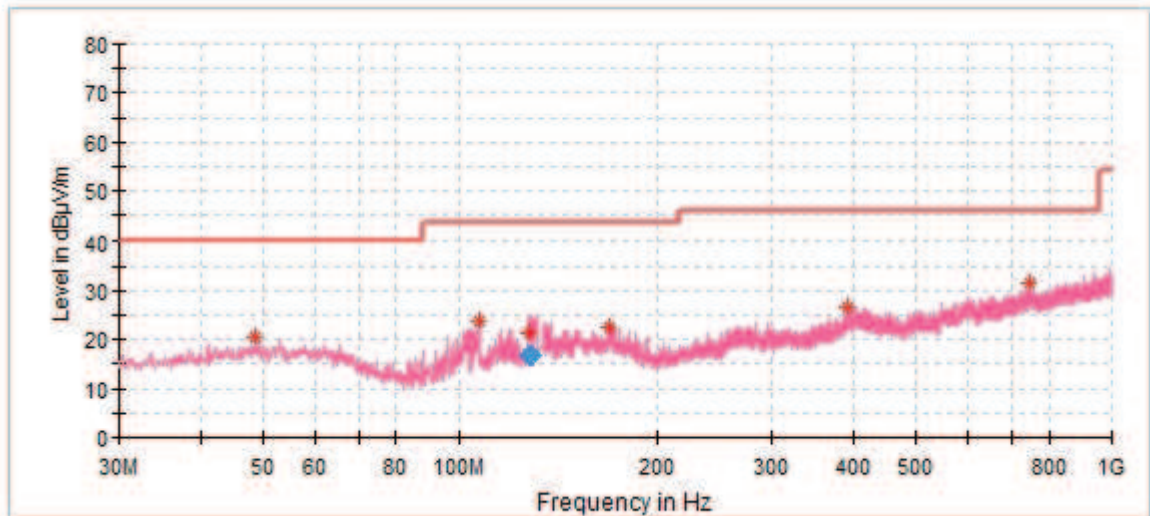
Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
107.018000	27.68	43.50	15.82	100.0	H	356.0	17.6
115.942000	24.23	43.50	19.27	100.0	H	202.0	19.1
168.225000	22.89	43.50	20.61	100.0	H	356.0	21.5
239.811000	24.99	46.00	21.01	100.0	H	0.0	18.7
267.165000	26.06	46.00	19.94	100.0	H	268.0	20.4
305.540000	28.57	46.00	10.68	100.0	H	63.0	21.2

Final_Result

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
305.540000	29.51	46.00	16.49	1000.0	120.000	100.0	H	63.0	21.2

EUT Information

EUT Name: Chat Pad Controller Keyboard for Xbox
Model: NS-XB1CHATPAD
Test Mode: ON
Test Voltage: DC 5V from USB
Test By: Kevin Zhou
Review By: Gary Chen
Remark: 3m Chamber



Critical Freqs

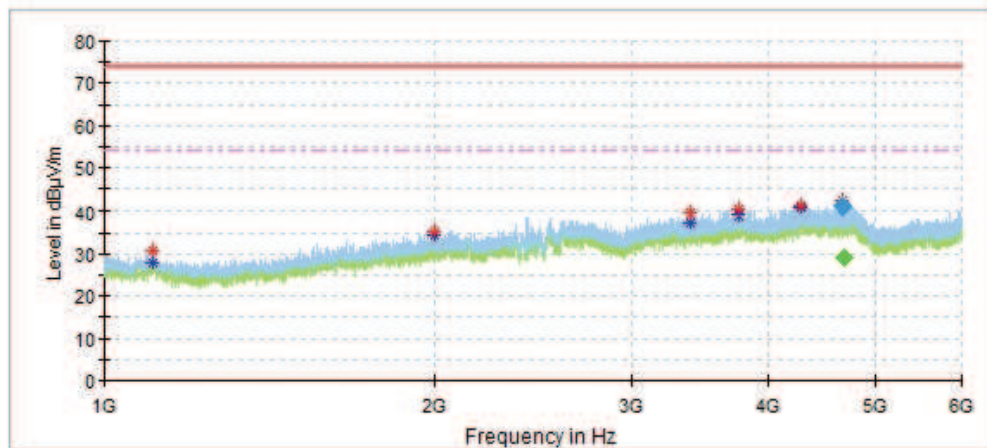
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
48.721000	20.52	40.00	19.48	100.0	V	298.0	21.2
107.600000	23.98	43.50	19.52	200.0	V	308.0	17.7
127.950000	21.52	43.50	21.98	200.0	V	304.0	19.0
169.098000	22.59	43.50	20.91	200.0	V	301.0	21.6
392.004000	26.69	46.00	19.31	100.0	V	346.0	22.9
750.225000	31.74	46.00	14.26	200.0	V	220.0	30.5

Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
127.950000	16.91	43.50	26.59	1000.0	120.000	200.0	V	304.0	19.0

EUT Information

EUT Name: Chat Pad Controller Keyboard for Xbox
Model: NS-XB1CHATPAD
Test Mode: ON
Test Voltage: DC 5V from USB
Test By: Kevin Zhou
Review By: Gary Chen
Remark: 3m Chamber



Critical_Freqs

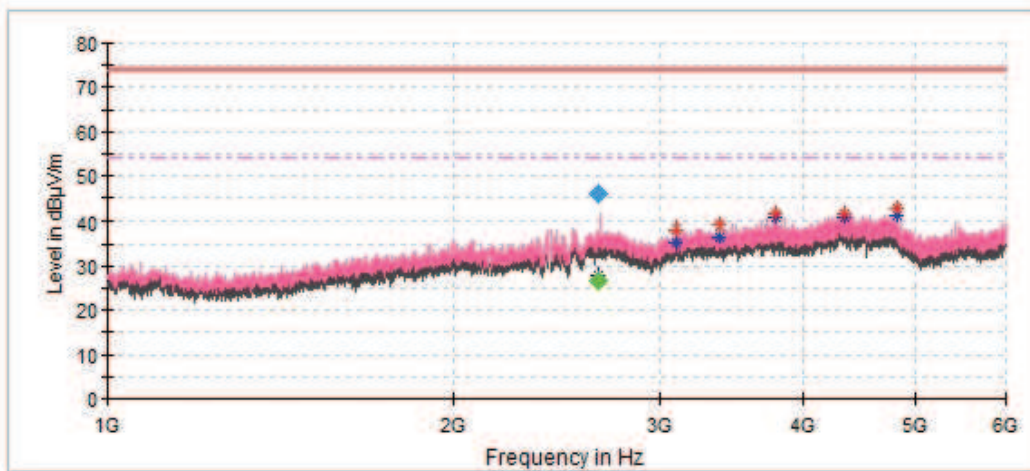
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1106.500000	30.65	---	74.00	43.35	100.0	H	191.0	-12.3
1106.500000	---	27.72	54.00	26.28	100.0	H	191.0	-12.3
1993.500000	35.25	---	74.00	38.75	100.0	H	240.0	-7.6
1993.500000	---	34.45	54.00	19.55	100.0	H	240.0	-7.6
3405.000000	39.23	---	74.00	34.77	100.0	H	336.0	-1.5
3405.000000	---	37.37	54.00	16.63	100.0	H	336.0	-1.5
3766.500000	---	38.77	54.00	15.23	100.0	H	345.0	0.1
3766.500000	40.40	---	74.00	33.60	100.0	H	345.0	0.1
4287.000000	40.99	---	74.00	33.01	100.0	H	249.0	2.1
4287.000000	---	40.49	54.00	13.51	100.0	H	249.0	2.1
4678.800000	42.17	---	74.00	31.83	100.0	H	179.0	2.5
4682.400000	---	29.12	54.00	24.88	100.0	H	167.0	2.5

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4678.800000	41.03	---	74.00	32.97	100.0	H	179.0	2.5
4682.400000	---	29.09	54.00	24.91	100.0	H	167.0	2.5

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Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2657.900000	46.41	---	74.00	27.39	100.0	V	170.0	-3.3
2659.500000	---	27.78	54.00	26.22	100.0	V	163.0	-3.3
3101.000000	---	35.14	54.00	18.86	100.0	V	302.0	-2.9
3101.000000	38.09	---	74.00	35.91	100.0	V	302.0	-2.9
3385.000000	---	36.50	54.00	17.50	100.0	V	288.0	-1.6
3385.000000	39.12	---	74.00	34.88	100.0	V	288.0	-1.6
3790.000000	---	40.51	54.00	13.49	100.0	V	302.0	0.0
3790.000000	41.52	---	74.00	32.48	100.0	V	302.0	0.0
4340.000000	---	40.71	54.00	13.29	100.0	V	209.0	2.2
4340.000000	41.56	---	74.00	32.44	100.0	V	209.0	2.2
4824.500000	---	41.15	54.00	12.85	100.0	V	323.0	2.0
4824.500000	42.72	---	74.00	31.28	100.0	V	323.0	2.0

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2657.900000	46.13	---	74.00	27.87	100.0	V	170.0	-3.2
2659.500000	---	26.62	54.00	27.38	100.0	V	163.0	-3.3