



Prüfbericht-Nr.: <i>Test report no.:</i>	CN21YVIU 001	Auftrags-Nr.: <i>Order no.:</i>	168343239	Seite 1 von 21 <i>Page 1 of 21</i>
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2021-11-11	
Auftraggeber: <i>Client:</i>	Country Mate Technology Ltd 5/F., Block E, Hing Yip Centre 31 Hing Yip St., Kwun Tong, Kln., Hong Kong			
Prüfgegenstand: <i>Test item:</i>	2.4GHz Digital Wireless Headphone			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	NS-HAWHP2, NS-HAWHP2-C			
Auftrags-Inhalt: <i>Order content:</i>	FCC approval			
Prüfgrundlage: <i>Test specification:</i>	CFR47 FCC Part 15: Subpart C Section 15.247 CFR47 FCC Part 15: Subpart C Section 15.207 CFR47 FCC Part 15: Subpart C Section 15.209 CFR47 FCC Part 2.1091			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2021-11-11	Please refer to photo documents		
Prüfmuster-Nr.: <i>Test sample no.:</i>	A003163351-001 to 004			
Prüfzeitraum: <i>Testing period:</i>	2021-11-19 – 2021-12-07			
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>	genehmigt von: <i>authorized by:</i>			
Datum: <i>Date:</i> 2021-12-15	 Signed by: Alex Lan		 Signed by: Winnie Hou	
Stellung / Position	Senior Project Engineer	Stellung / Position	Department Manager	
Sonstiges / Other:				
FCC ID: MV3-NSHAWHP2T				
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. Prüfgrundlage(n) 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				
<p>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.</p> <p><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></p>				

V05

Test Summary

5.1.1 ANTENNA REQUIREMENT

RESULT: Pass

5.1.2 MAXIMUM CONDUCTED OUTPUT POWER

RESULT: Pass

5.1.3 CONDUCTED POWER SPECTRAL DENSITY

RESULT: Pass

5.1.5 6dB BANDWIDTH

RESULT: Pass

5.1.6 CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100 kHz BANDWIDTH

RESULT: Pass

5.1.7 RADIATED SPURIOUS EMISSION

RESULT: Pass

5.1.8 CONDUCTED EMISSION ON AC MAINS

RESULT: Pass

6.1.1 ELECTROMAGNETIC FIELDS

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 of Conducted & Radiated Testing

2 Test Sites

2.1 Test Facilities

TÜV Rheinland (Shenzhen) Co., Ltd.

No. 362 Huanguan Road Middle, Longhua District, Shenzhen 518110, People's Republic of China

FCC Registration No.: 694916

IC Registration No.: 25069, CAB identifier: CN0078

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Radio Spectrum Testing				
Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
EXA Signal Analyzer, Multi-touch	Keysight	N9010B	MY60241175	28.09.2022
MXG X-Series RF Vector Signal Generator	Keysight	N5182B	MY61250137	28.09.2022
EXG X-Series Microwave Analog Signal Generator	Keysight	N5173B	MY61250141	28.09.2022
Power Control Unit	Tonscend	JS0806-4ADC	N/A	28.09.2022
Automation Control Unit	Tonscend	JS0806-2	21C8060396	28.09.2022
Test Software	Tonscend	JS1120-3	N/A	N/A
Control PC	Lenovo	TianYi510S-071MB	YLX23JMF	N/A
Unwanted Emission Testing				
Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
EMI Test Receiver	R&S	ESR 7	102021	10.08.2022
Signal Analyzer	R&S	FSV 40	101439	09.08.2022
System Controller Interface	R&S	SCI-100	S10010038	N/A
Filterbank	R&S	Wlan	100759	09.08.2022
OSP	R&S	OSP 120	102040	N/A
Pre-amplifier	R&S	SCU08F1	08320031	09.08.2022
Amplifier	R&S	SCU-18F	180070	09.08.2022
Amplifier	R&S	SCU40A	100475	09.08.2022
Trilog Broadband Antenna (30 MHz - 7 GHz)	Schwarzbeck	VULB 9162	193	08.08.2022
Double-Ridged Antenna (1 -18 GHz)	ETS-LINDGREN	3117	00218717	08.08.2022
Wideband Ridged Horn Antenna (18-40 GHz)	Steatite	QMS-00880	19067	08.08.2022
Active Loop Antenna	Schwarzbeck	FMZB 1513	302	13.09.2022
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	22.06.2024
Conducted Emissions testing				
Equipment	Manufacturer	Model No.	Serial No.	Cal. Until

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EMI Test Receiver	R&S	ESR3	102428	19.05.2022
Artificial Mains Network	R&S	ENV216	102333	16.08.2021
EMC32 test software	R&S	EMC32(Ver.10.50.01)	N/A	N/A

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.

Item		Extended Uncertainty
Conducted Emission		± 2.74 dB
Radiated Emission (30-1000MHz)	Field strength (dBµV/m)	4.27dB
Radiated Emission (above 1000MHz)	Field strength (dBµV/m)	4.46dB
Radio Spectrum		± 1.5 dB

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) file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

The TÜV Rheinland (Shenzhen) Co., Ltd. Test facility located at No. 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 EUT is a charging base of 2.4GHz Digital Wireless Headphone system, it supports 2.4GHz wireless technology.

All models are identical except the model number is different for different market purpose: model NS-HAWHP2 for US and NS-HAWHP2-C for Canada.

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	2.4GHz Digital Wireless Headphone
Type Designation	NS-HAWHP2, NS-HAWHP2-C
FCC ID	MV3-NSHAWHP2T
Operating Voltage	DC 5V, 500mA via AC/DC Adapter
Testing Voltage	AC 120V, 60Hz
AC/DC Adapter	Model: XH-UL0505-A1 Rating input: AC 100-240V, 50/60Hz, 0.3A Rating output: DC 5V, 0.5A
Technical Specification of 2.4GHz	
Operating Frequency	2402-2480MHz for data rate 1Mbps 2404-2478MHz for data rate 2Mbps
Data rate	1Mbps, 2Mbps
Channel Number	40 channels for data rate 1Mbps 38 channels for data rate 2Mbps
Channel separation	2MHz
Modulation	GFSK
Antenna Type	PCB Layout antenna
Smart Antenna Systems:	Not Applicable
Number of Antenna	1
Antenna Gain	-0.5 dBi

Table 3: RF Channel and Frequency

RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
00	2402.00	10	2422.00	20	2442.00	30	2462.00
01	2404.00	11	2424.00	21	2444.00	31	2464.00
02	2406.00	12	2426.00	22	2446.00	32	2466.00
03	2408.00	13	2428.00	23	2448.00	33	2468.00
04	2410.00	14	2430.00	24	2450.00	34	2470.00
05	2412.00	15	2432.00	25	2452.00	35	2472.00
06	2414.00	16	2434.00	26	2454.00	36	2474.00
07	2416.00	17	2436.00	27	2456.00	37	2476.00
08	2418.00	18	2438.00	28	2458.00	38	2478.00
09	2420.00	19	2440.00	29	2460.00	39	2480.00

3.3 Independent Operation Modes

The basic operation modes are:

- A. On, transmitting mode
 - 1. Low channel
 - 2. Middle channel
 - 3. High channel
- B. On, Operating
- C. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- Application Form
- Block Diagram
- FCC/IC Label and Location Info
- Operation Description
- Photo Document
- Schematics
- 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 testing were performed according to the procedures in ANSI C63.10: 2013.

According to clause 3.1, all test were applied on model NS-HAWHP2.

4.3 Special Accessories and Auxiliary Equipment

Table 4: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N
Notebook	Lenovo	ThinkPad X260	N/A
Headphone	Country Mate Technology Ltd	NS-HAWHP2	N/A

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)

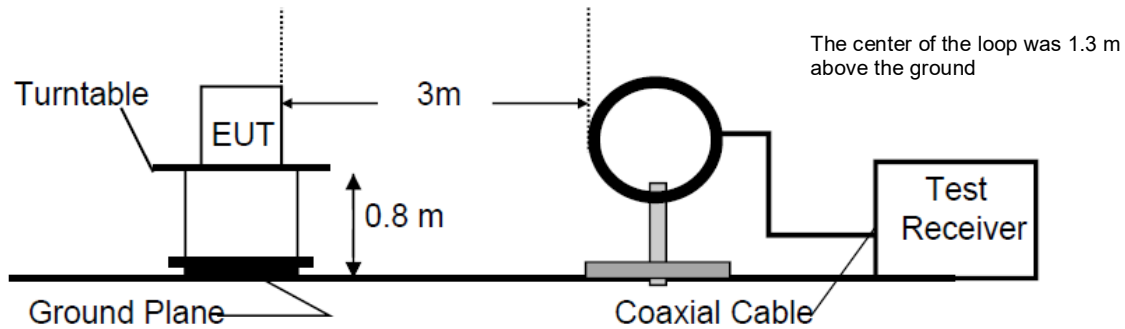


Diagram of Measurement Configuration for Radiation Test (Below 1GHz)

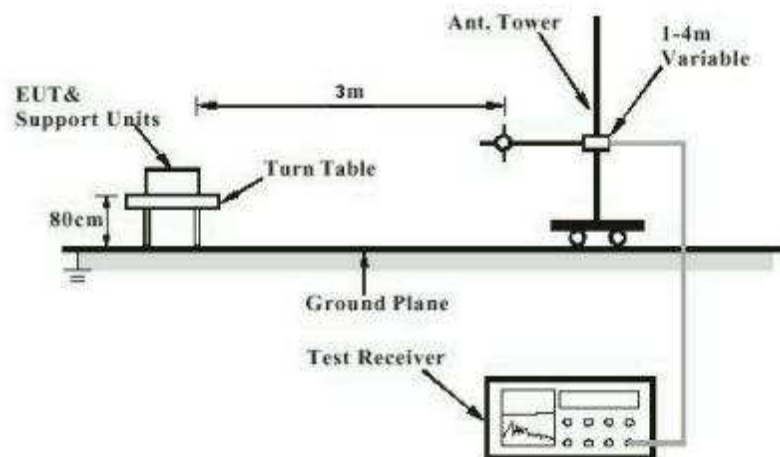


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

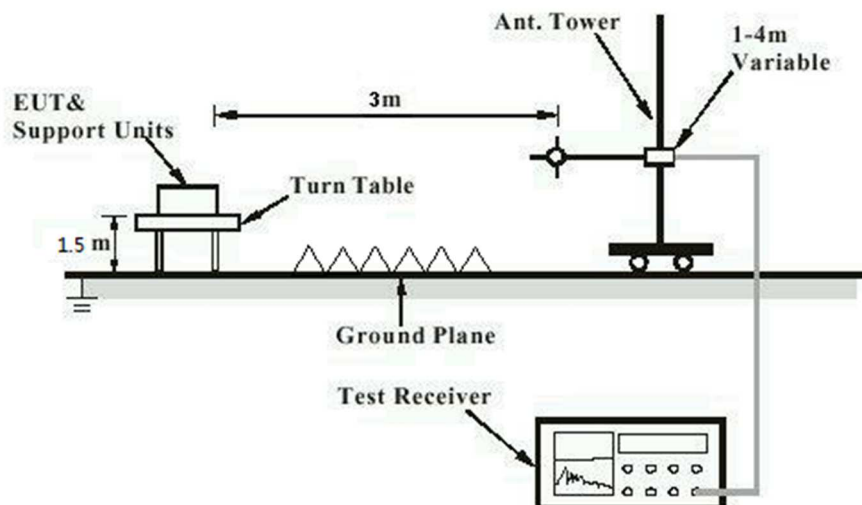


Diagram of Measurement Configuration for Mains Conduction Measurement

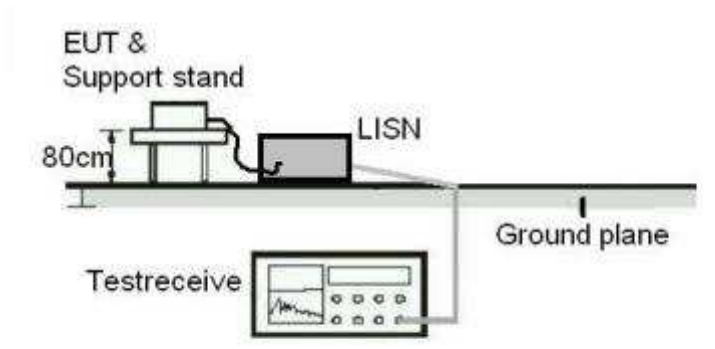
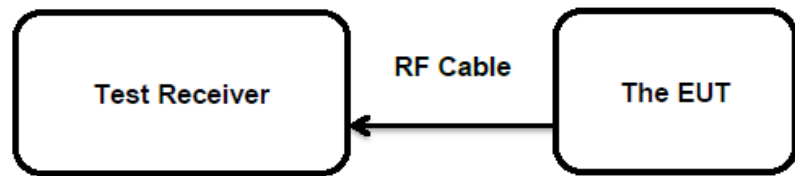


Diagram of Measurement Configuration for Conducted Transmitter Measurement



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
Limit	:	the use of antennas with directional gains that do not exceed 6 dBi

According to the manufacturer declared, the EUT has an ceramic chip antenna , the directional gain of antenna is -0.5 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 Maximum Conducted Output Power

RESULT:
Pass
Test Specification

Test standard	: FCC Part 15.247(b)(3)
Basic standard	: ANSI C63.10: 2013
Limits	: < 1 Watt (Maximum Conducted Peak Power)
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2021-12-07
Input voltage	: AC 120V, 60Hz
Operation mode	: A
Test channel	: Low / Middle / High
Ambient temperature	: 24.8 °C
Relative humidity	: 53 %
Atmospheric pressure	: 101 kPa

For details refer to following test result.

Table 5: Test Result of Maximum Conducted Output Power

data rate	Channel Frequency (MHz)	Conducted Average Output Power (dBm)	Conducted Peak Output Power (dBm)	Limit (dBm)	Limit (W)
1Mbps	2402	10.84	11.35	30	1
	2440	10.72	11.17	30	1
	2480	10.58	10.93	30	1
2Mbps	2404	10.81	11.32	30	1
	2440	10.70	11.16	30	1
	2478	10.54	10.97	30	1

5.1.3 Conducted Power Spectral Density

RESULT:
Pass
Test Specification

Test standard : FCC Part 15.247(e)
 Basic standard : ANSI C63.10: 2013
 Limits : 8 dBm / 3kHz
 Kind of test site : Shielded Room

Test Setup

Date of testing : 2021-11-30
 Input voltage : AC 120V, 60Hz
 Operation mode : A
 Test channel : Low / Middle / High
 Ambient temperature : 24.8 °C
 Relative humidity : 53 %
 Atmospheric pressure : 101 kPa

For details refer to following test result.

Table 6: Test Result of Power Spectral Density, 1Mbps

Channel	Channel Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)
Low Channel	2402	5.68	8
Middle Channel	2440	4.81	8
High Channel	2480	4.77	8

Table 7: Test Result of Power Spectral Density, 2Mbps

Channel	Channel Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)
Low Channel	2402	3.88	8
Middle Channel	2440	3.41	8
High Channel	2480	3.34	8

Note: The cable loss is taken into account in results.

For the measurement records, refer to the appendix B.

5.1.5 6dB Bandwidth

RESULT:
Pass
Test Specification

Test standard : FCC Part 15.247(a)(2)
 : RSS-247 Clause 5.2(a)
 Basic standard : ANSI C63.10: 2013
 Kind of test site : Shielded Room

Test Setup

Date of testing : 2021-11-30
 Input voltage : AC 120V, 60Hz
 Operation mode : A
 Test channel : Low / Middle / High
 Ambient temperature : 24.8 °C
 Relative humidity : 53 %
 Atmospheric pressure : 101 kPa

Table 8: Test Result of 6dB Bandwidth, 1Mbps

Channel	Channel Frequency (MHz)	-6dB Bandwidth (kHz)	Limit (kHz)	Result
Low Channel	2402	658	500	Pass
Mid Channel	2440	662	500	Pass
High Channel	2480	660	500	Pass

Table 9: Test Result of 6dB Bandwidth, 2Mbps

Channel	Channel Frequency (MHz)	-6dB Bandwidth (kHz)	Limit (kHz)	Result
Low Channel	2402	1614	500	Pass
Mid Channel	2440	1396	500	Pass
High Channel	2480	1408	500	Pass

For the measurement records, refer to the appendix B.

5.1.6 Conducted Spurious Emissions Measured in 100 kHz Bandwidth

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

Test standard	:	FCC Part 15.247(d) RSS-247 Clause 5.5
Basic standard	:	ANSI C63.10: 2013
Limits	:	20dB (below that in the 100kHz bandwidth within the band that contains the highest level of the desired power); In addition, radiated emissions which fall in the restricted bands, must also comply with the radiated emission limits specified in 15.209(a)
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	2021-12-06
Input voltage	:	AC 120V, 60Hz
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	24.8 °C
Relative humidity	:	53 %
Atmospheric pressure	:	101 kPa

Test results of 100kHz Bandwidth of Frequency Band Edge by Conducted method refer to test plots, and compliance is achieved as well.

For the measurement records, refer to the appendix B.

5.1.7 Radiated Spurious Emission

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

Test standard	:	FCC Part 15.247(d) & FCC Part 15.205 RSS-247 Clause 3.3 & 5.5
Basic standard	:	ANSI C63.10: 2013
Limits	:	Refer to 15.209(a) of FCC part 15.247(d) RSS-Gen Table 4 & Table 5
Kind of test site	:	3m Semi-anechoic Chamber

Test Setup

Date of testing	:	2021-11-22
Input voltage	:	AC 120V, 60Hz
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	24 °C
Relative humidity	:	50 %
Atmospheric pressure	:	101 kPa

Remark:

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.

5.1.8 Conducted Emission on AC Mains

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

Test standard	:	FCC Part 15.207(a) RSS-Gen Clause 8.8
Basic standard	:	ANSI C63.10: 2013
Frequency range	:	0.15 – 30MHz
Limits	:	FCC Part 15.207(a) RSS-Gen Table 4
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	2021-11-19
Input voltage	:	AC 120V, 60Hz
Operation mode	:	B
Earthing	:	Not connected
Ambient temperature	:	24.8 °C
Relative humidity	:	53 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix B.

6 Safety Human Exposure

6.1 Radio Frequency Exposure Compliance

6.1.1 Electromagnetic Fields

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

Test standard : FCC KDB Publication 447498 v06
CFR47 FCC Part 2: Section 2.1091
CFR47 FCC Part 1: Section 1.1310

FCC requirement: Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 20cm normally can be maintained between the user and the device.

MPE Calculation Method according to OET Bulletin 65

Power Density: $S(\text{mW}/\text{cm}^2) = PG/4\pi R^2$ or $EIRP/4\pi R^2$

Where:

S = power density (mW/cm²)

P = power input to the antenna (mW)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna (cm)

The worst-case mode (the configuration having highest EIRP) specified:

2.4GHz: 11.35 dBm with -0.5dBi antenna gain

From the RF output power, the minimum mobile separation distance, d=20 cm, as well as the antenna gain, the RF power density can be calculated as below:

For 2.4GHz: $S(\text{mW}/\text{cm}^2) = PG/4\pi R^2 = 0.002 \text{ mW}/\text{cm}^2$

Limits for Maximum Permissible Exposure (MPE) according to FCC Part 1.1310: 1.0 mW/cm²

“RF Radiation Exposure Statement Caution: This Transmitter must be installed to provide a separation distance of at least 20 cm from all persons.”

7 Photographs of the Test Set-Up

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

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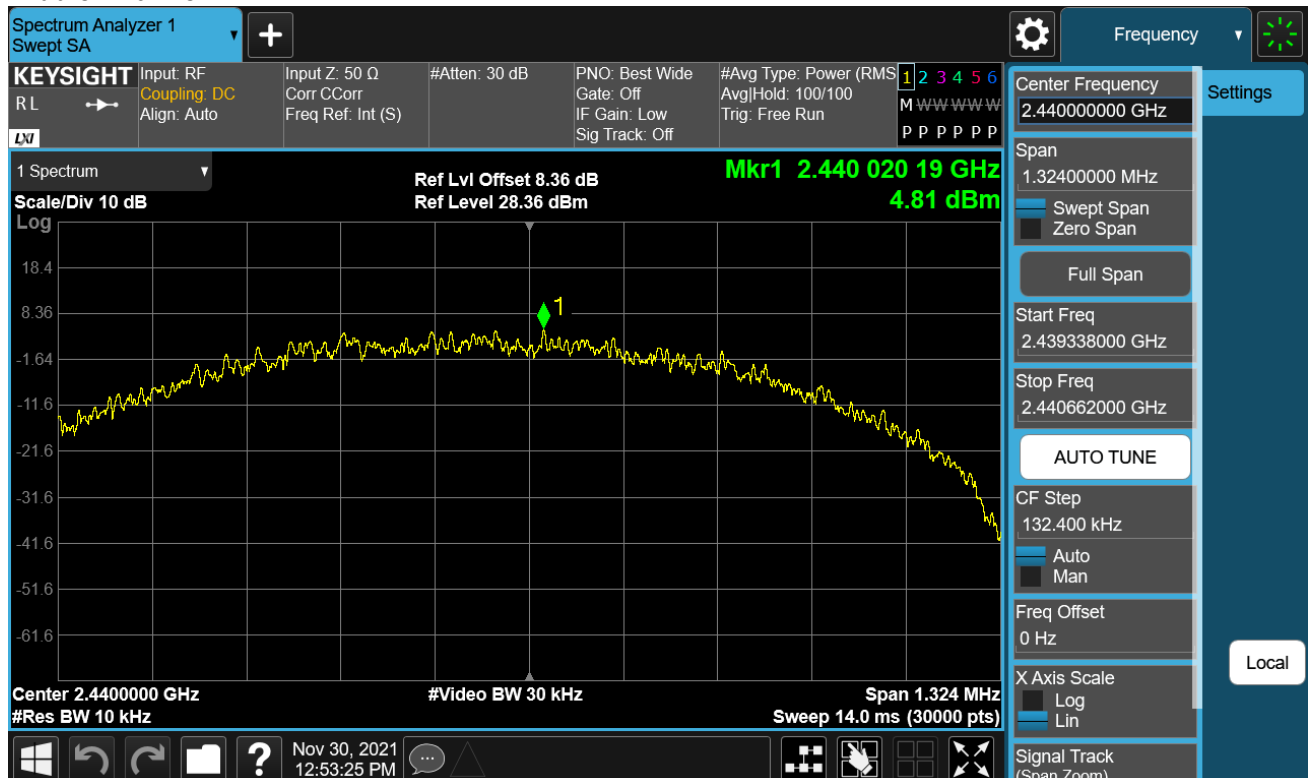
Appendix B.1: Conducted Power Spectral Density

Data Rate, 1Mbps

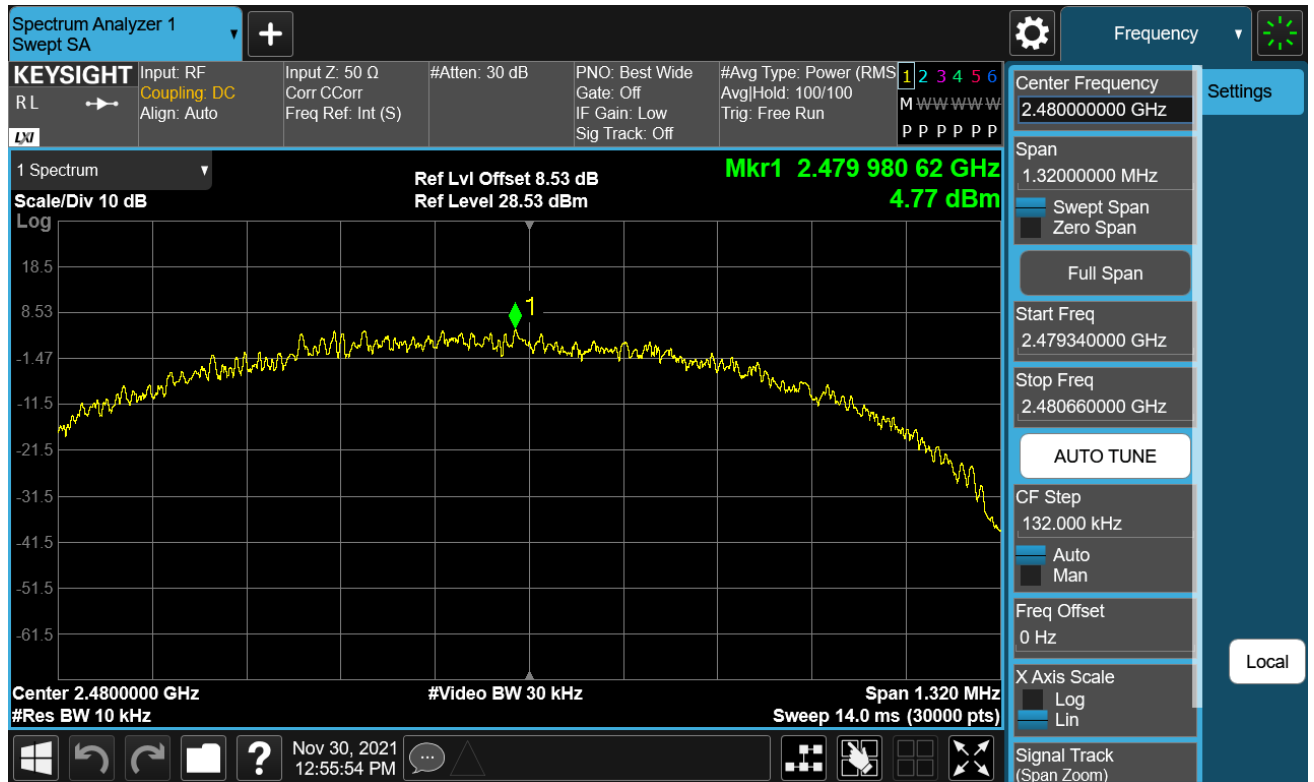
Low Channel



Middle Channel

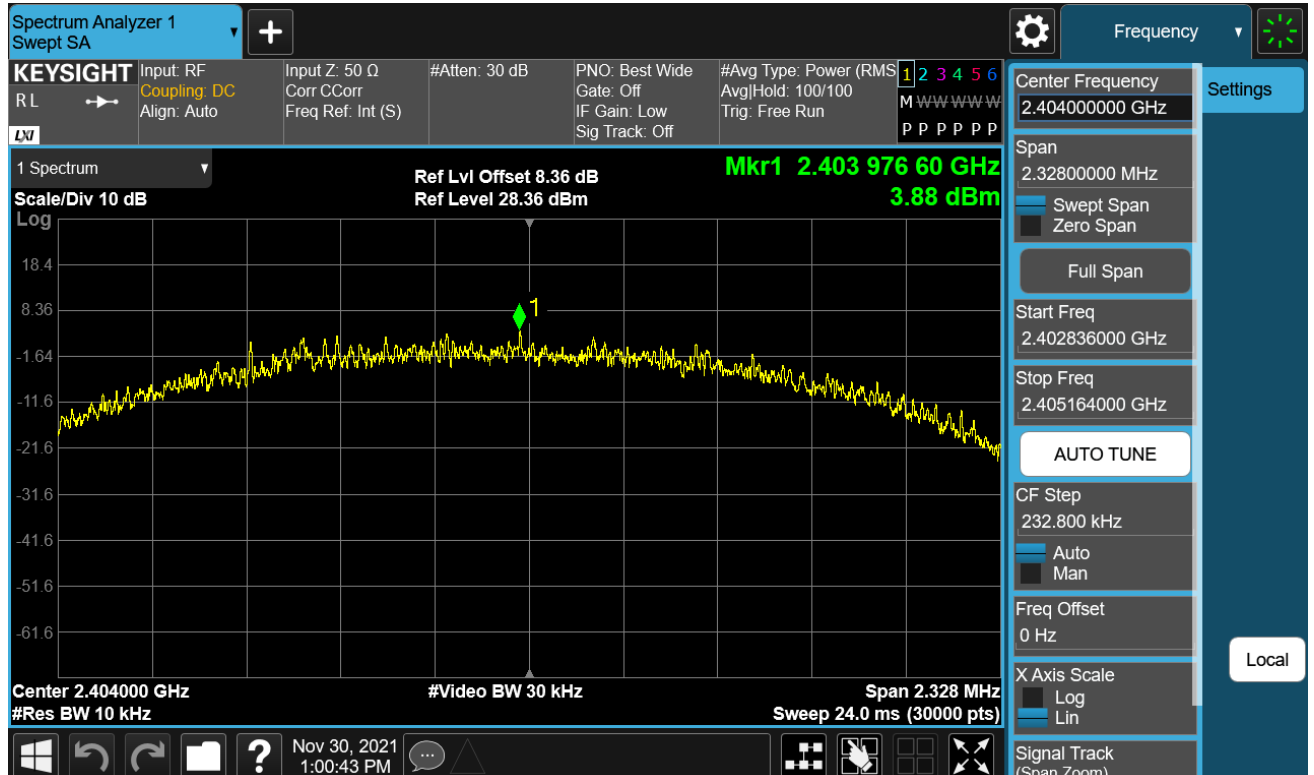


High Channel

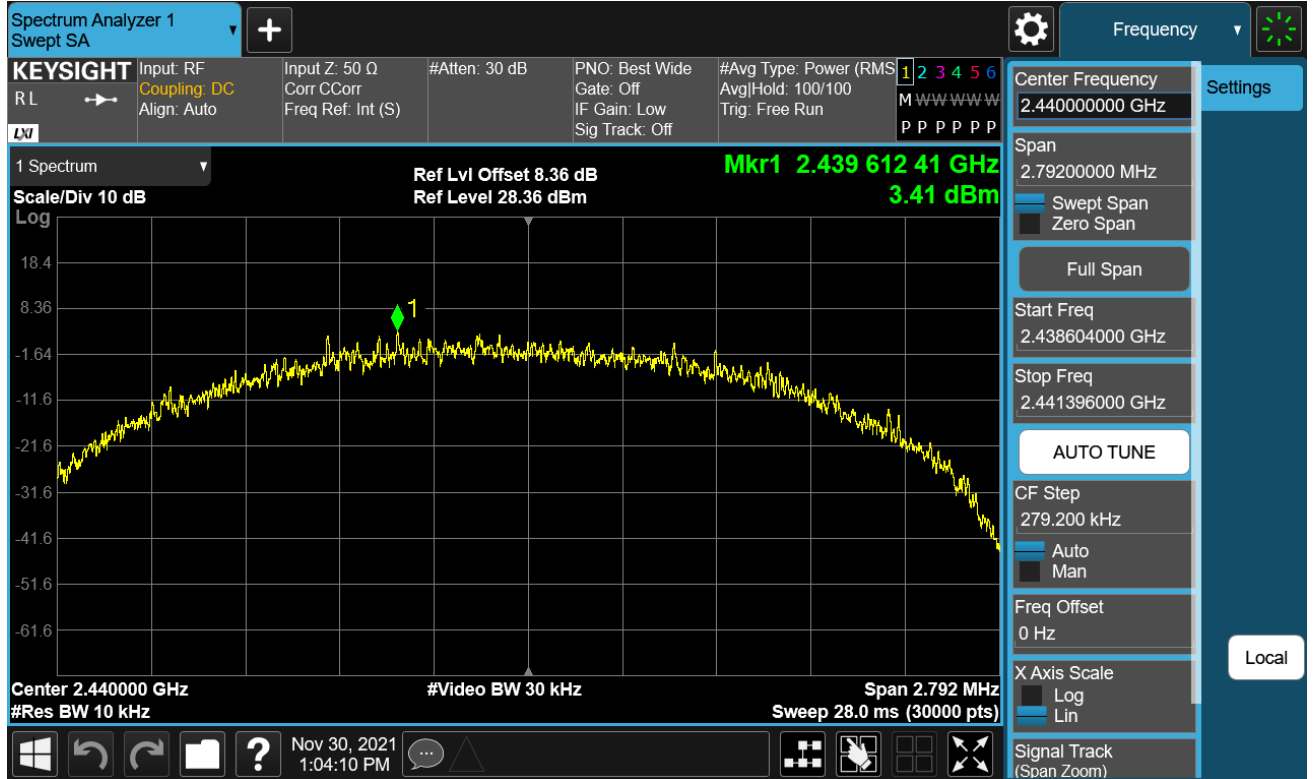


Data Rate, 2Mbps

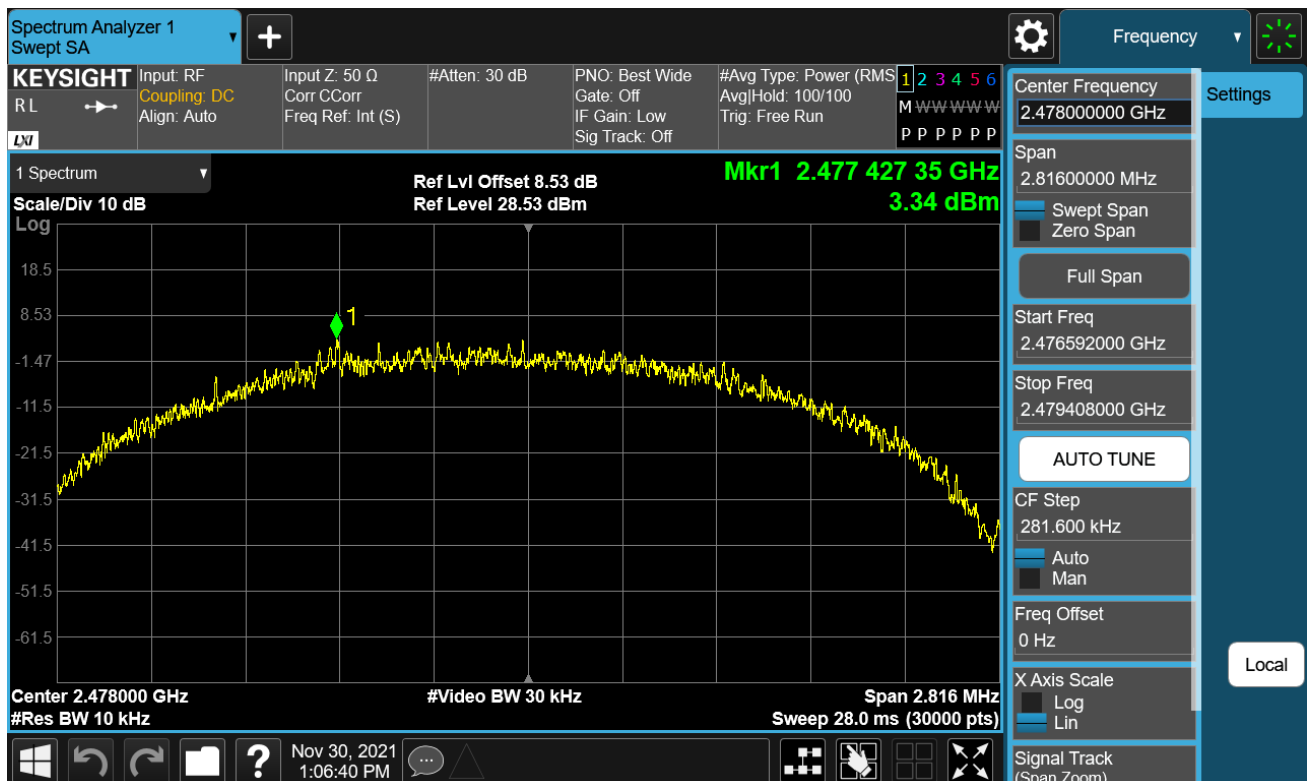
Low Channel



Middle Channel



High Channel



Appendix B.2: 6dB Bandwidth

Data Rate, 1Mbps

Low Channel



Middle Channel



High Channel

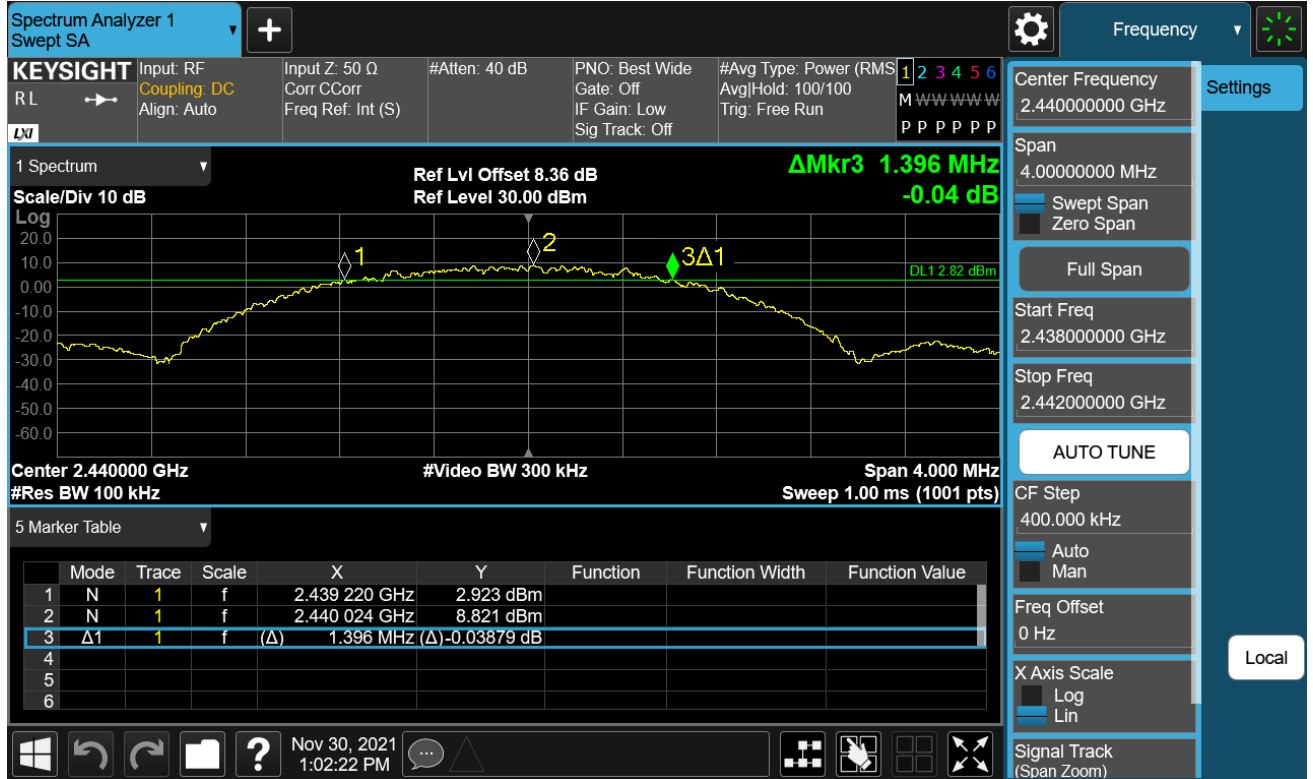


Data Rate, 2Mbps

Low Channel



Middle Channel



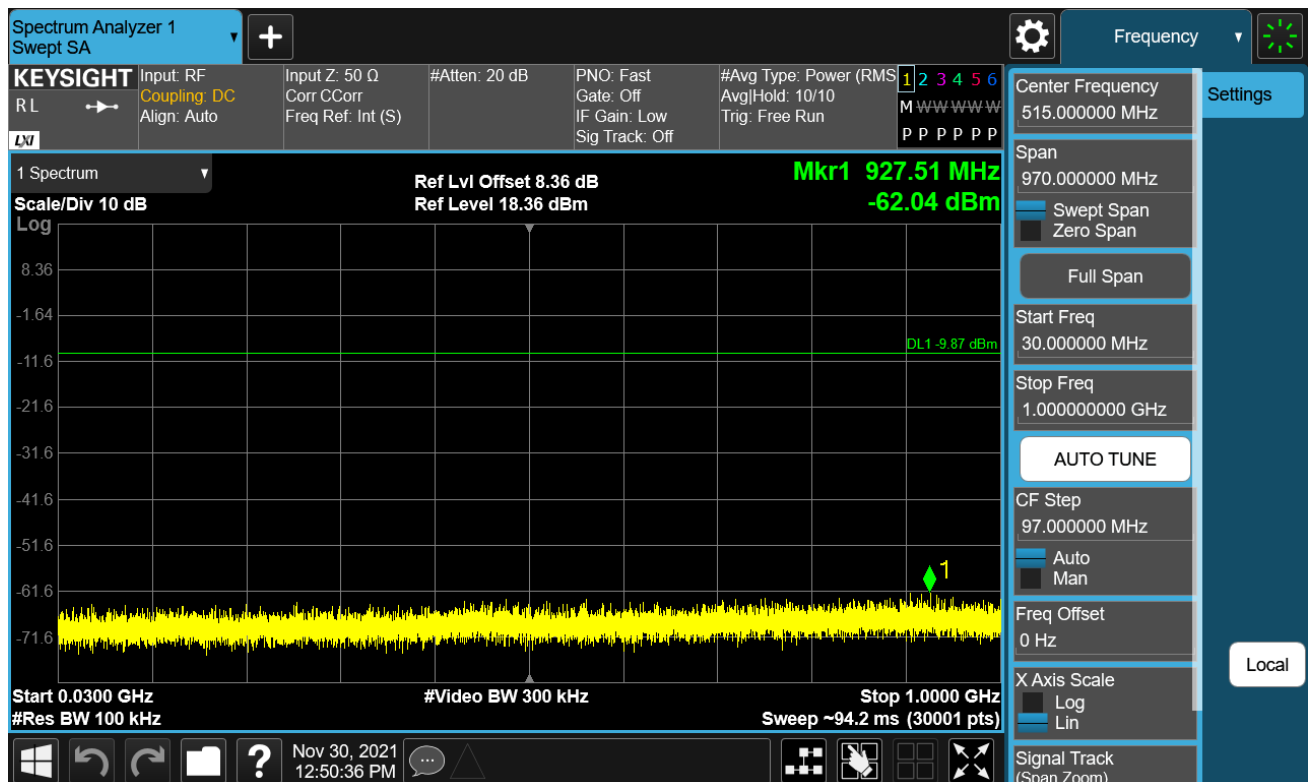
High Channel

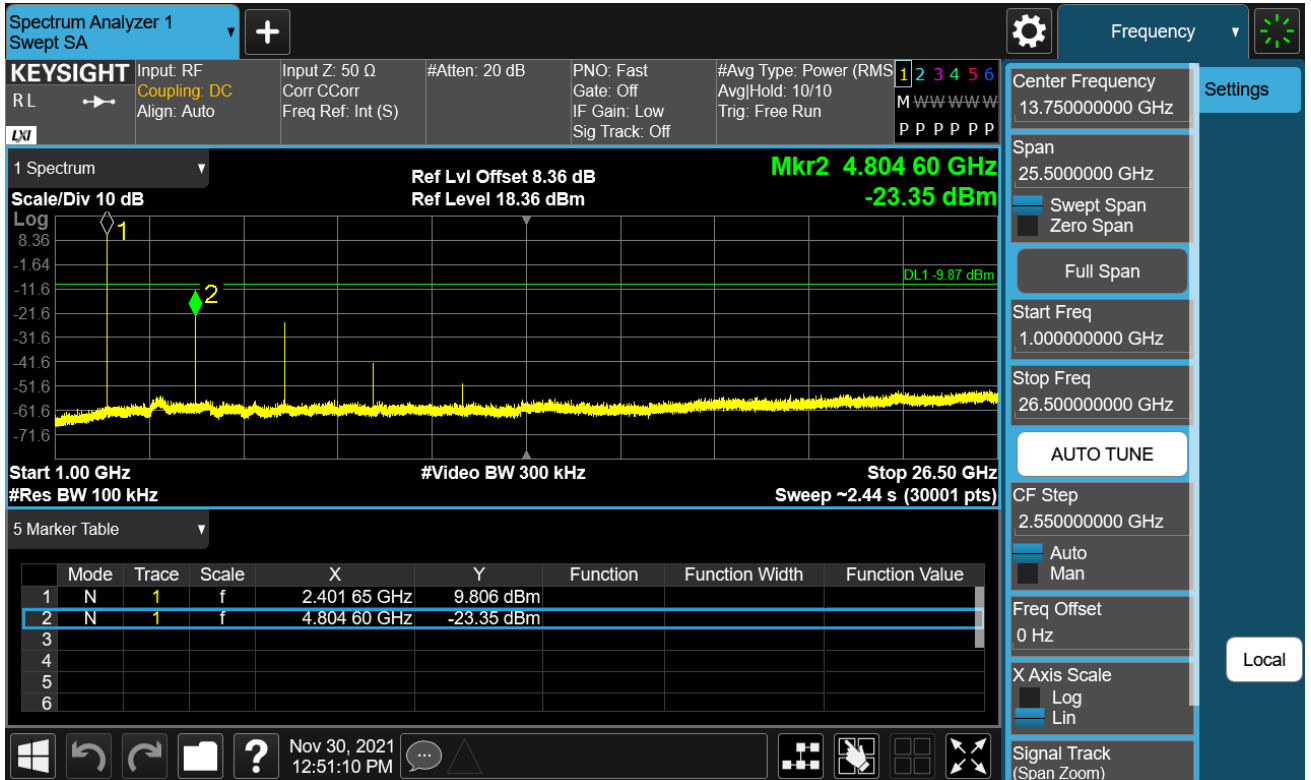


Appendix B.3: Conducted Spurious Emissions Measured in 100 kHz Bandwidth

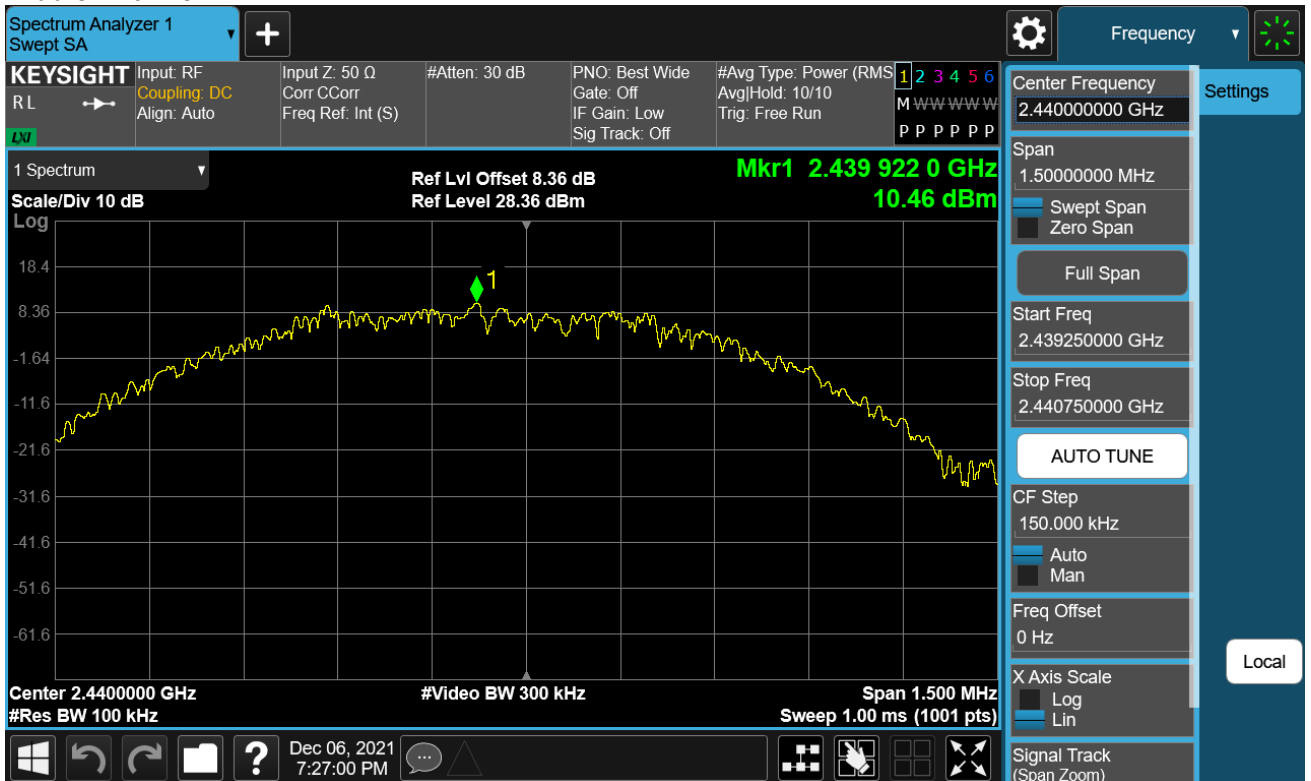
Data Rate, 1Mbps

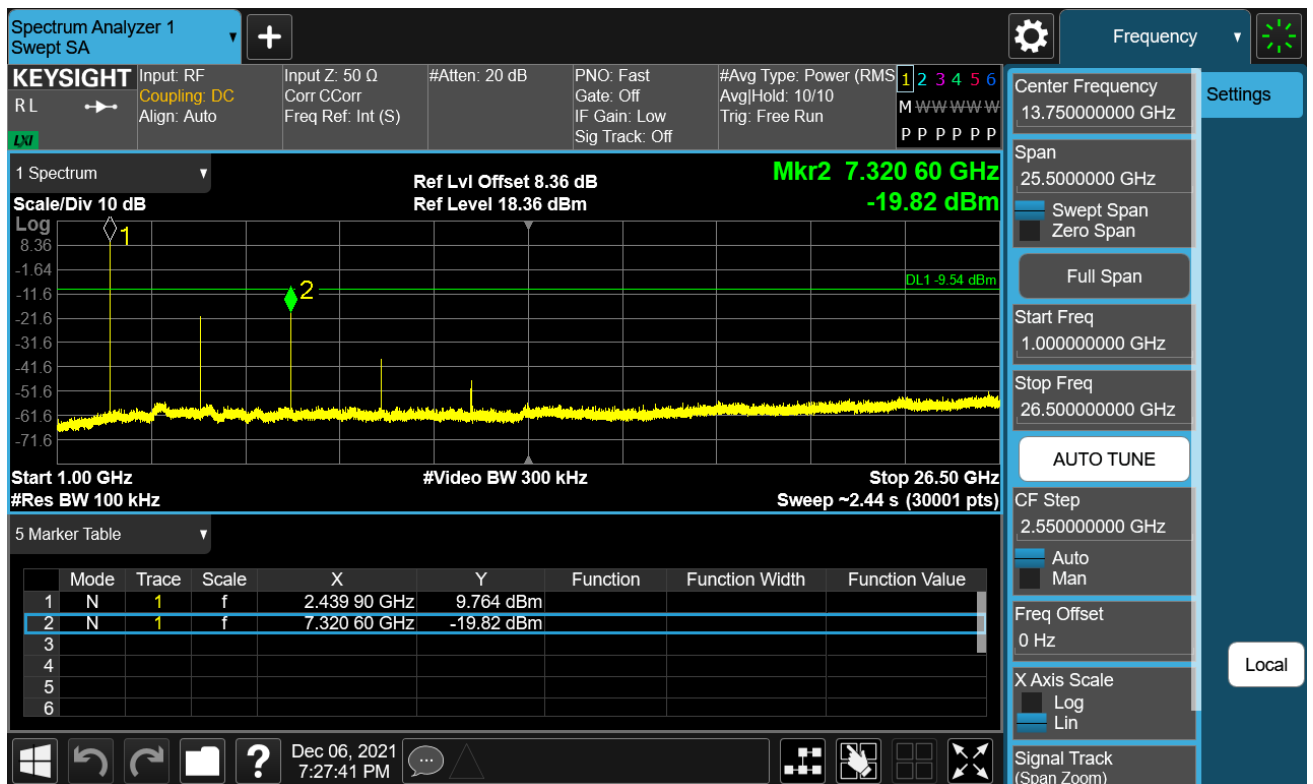
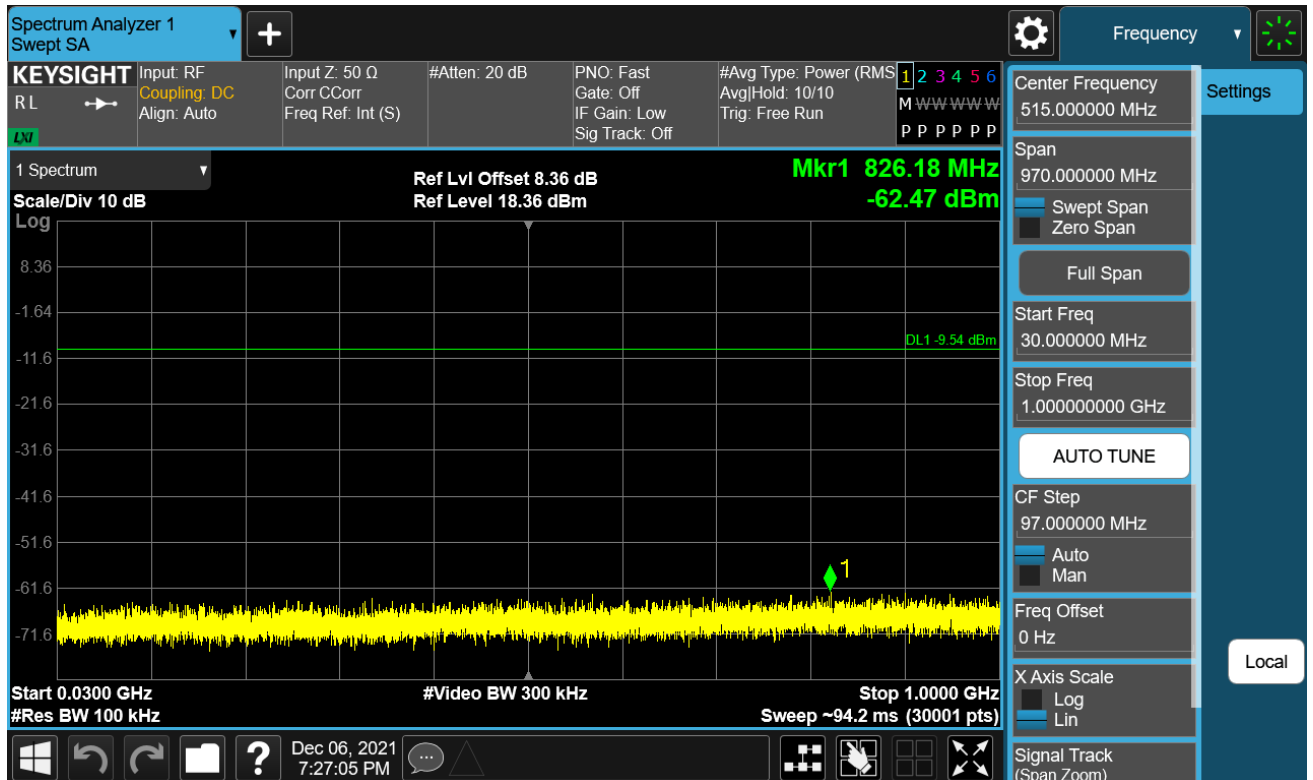
Low Channel



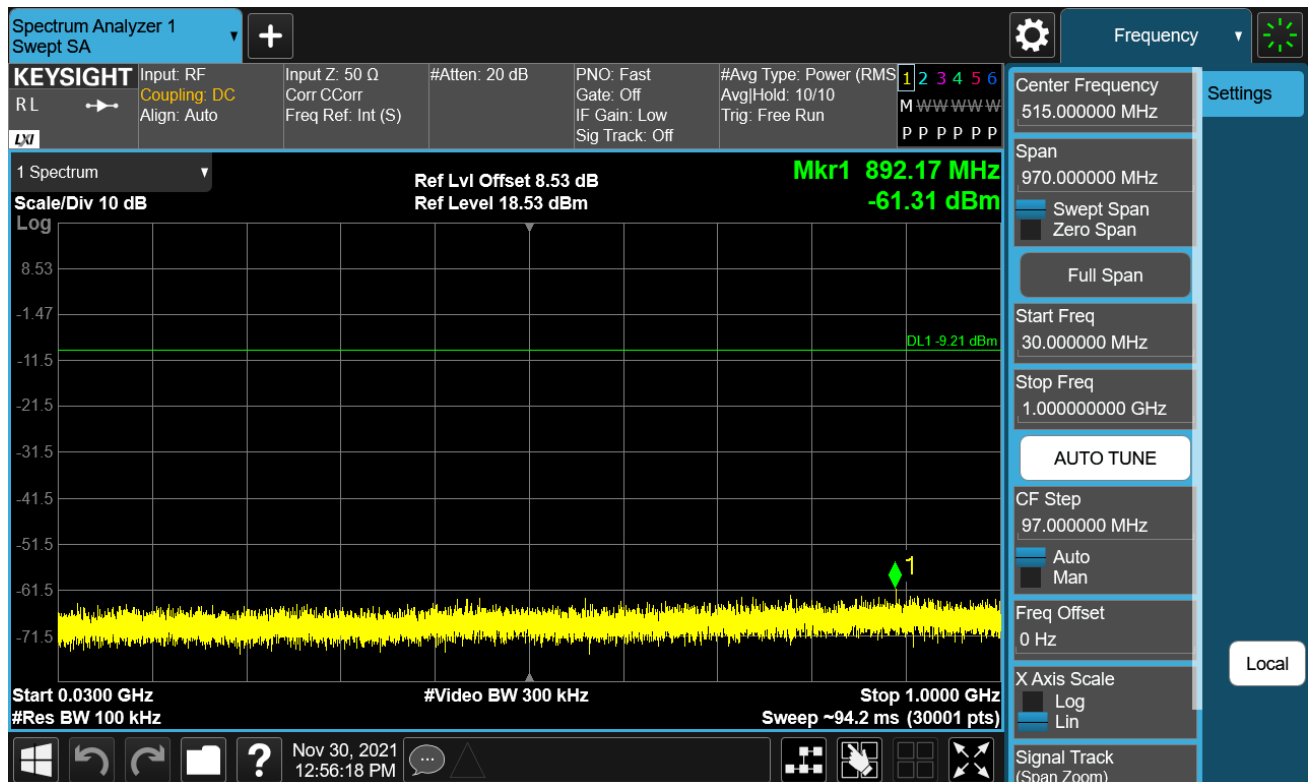


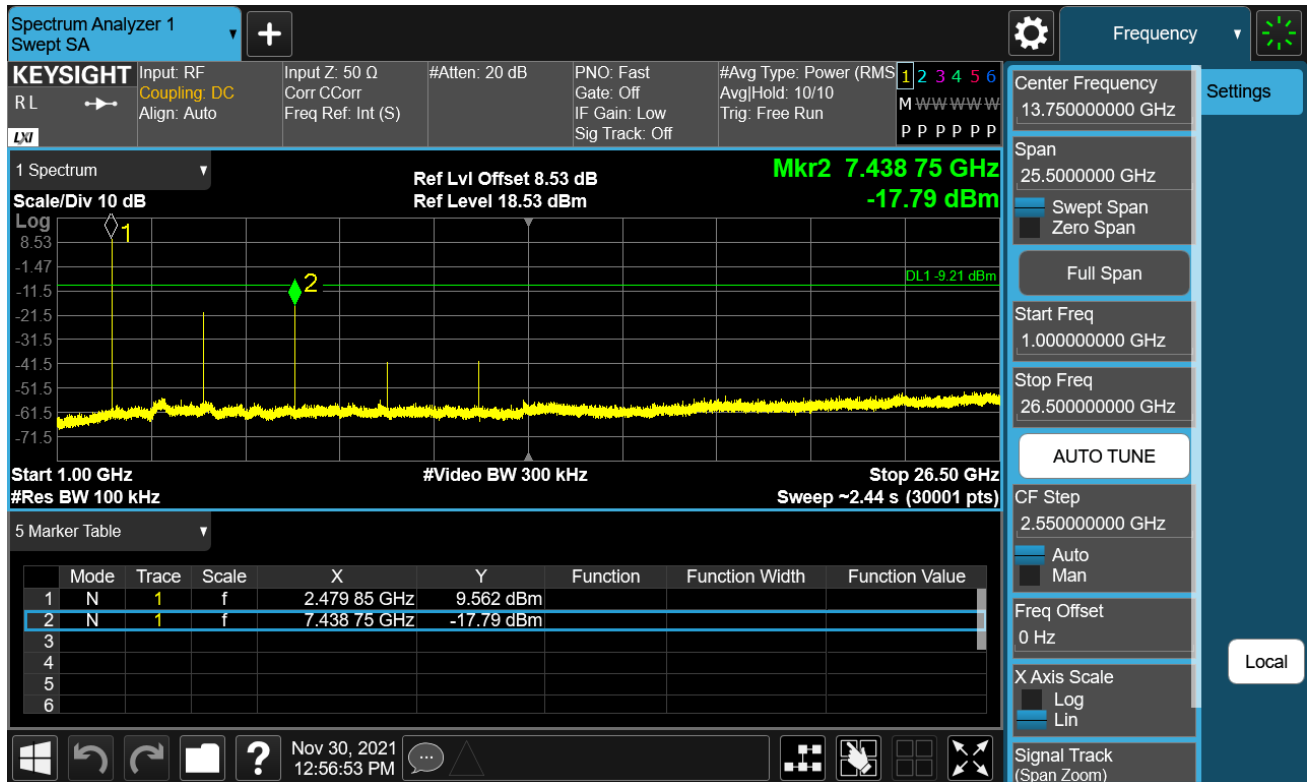
Middle Channel



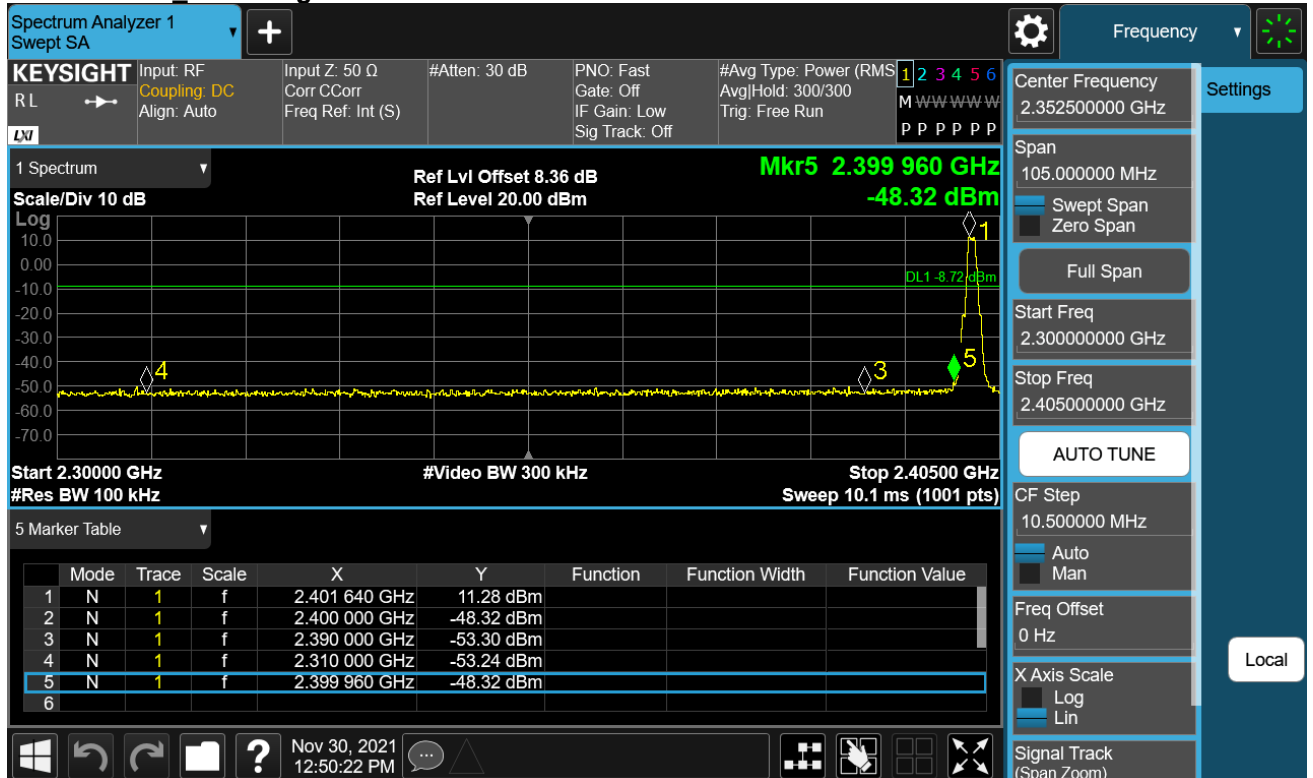


High Channel

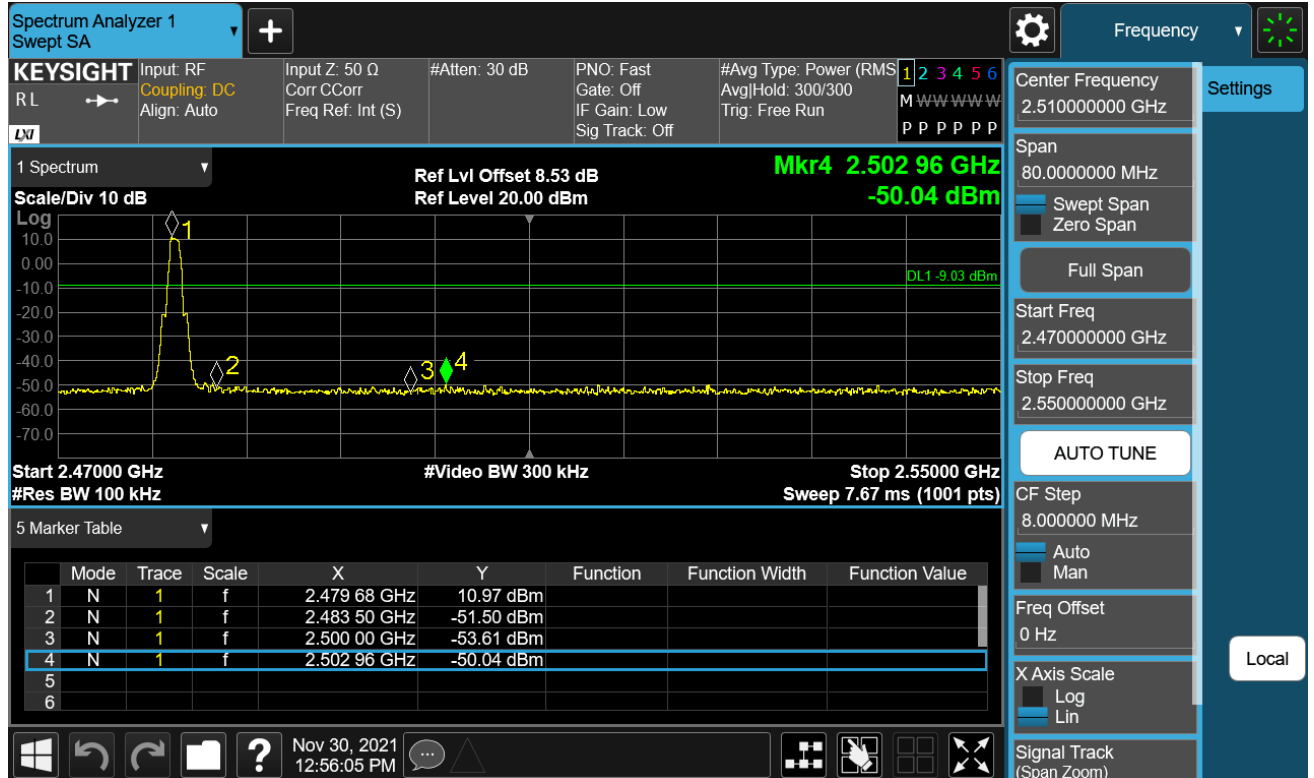




Low Channel Band Edge

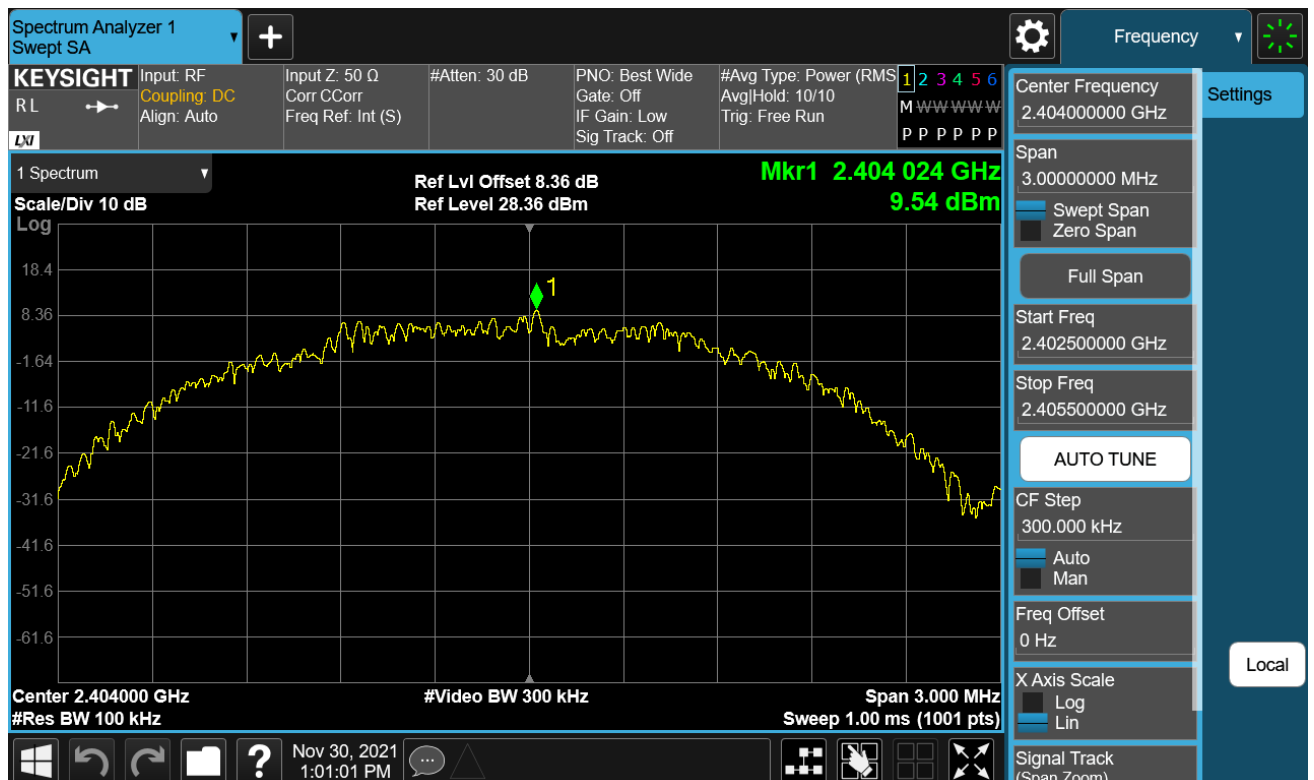


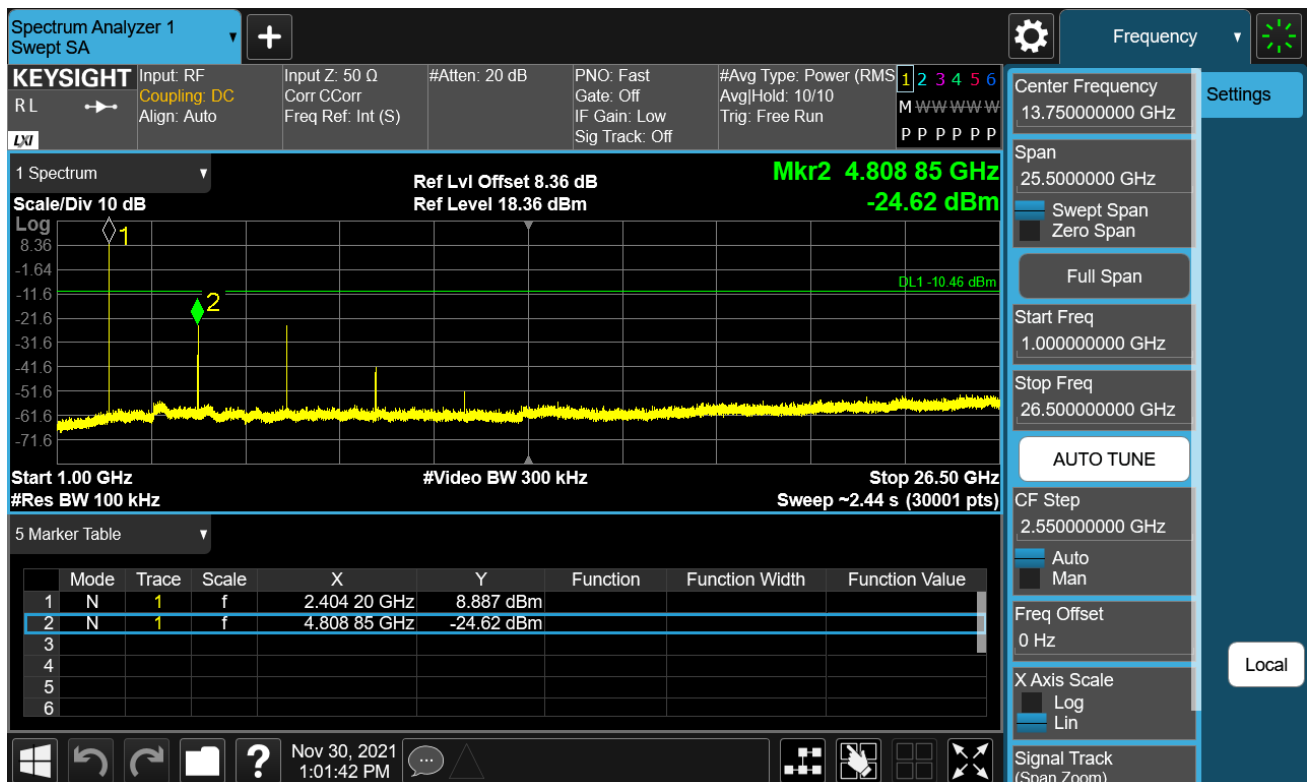
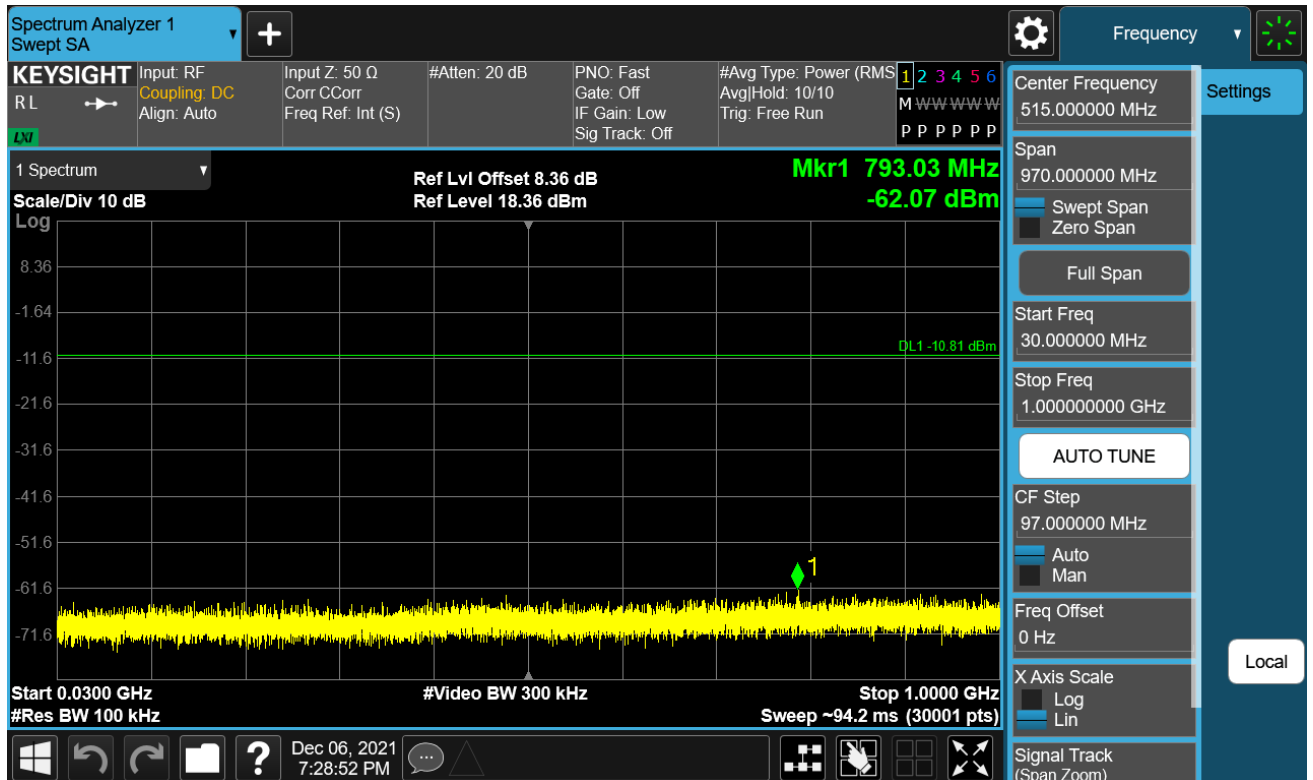
High Channel_Band Edge



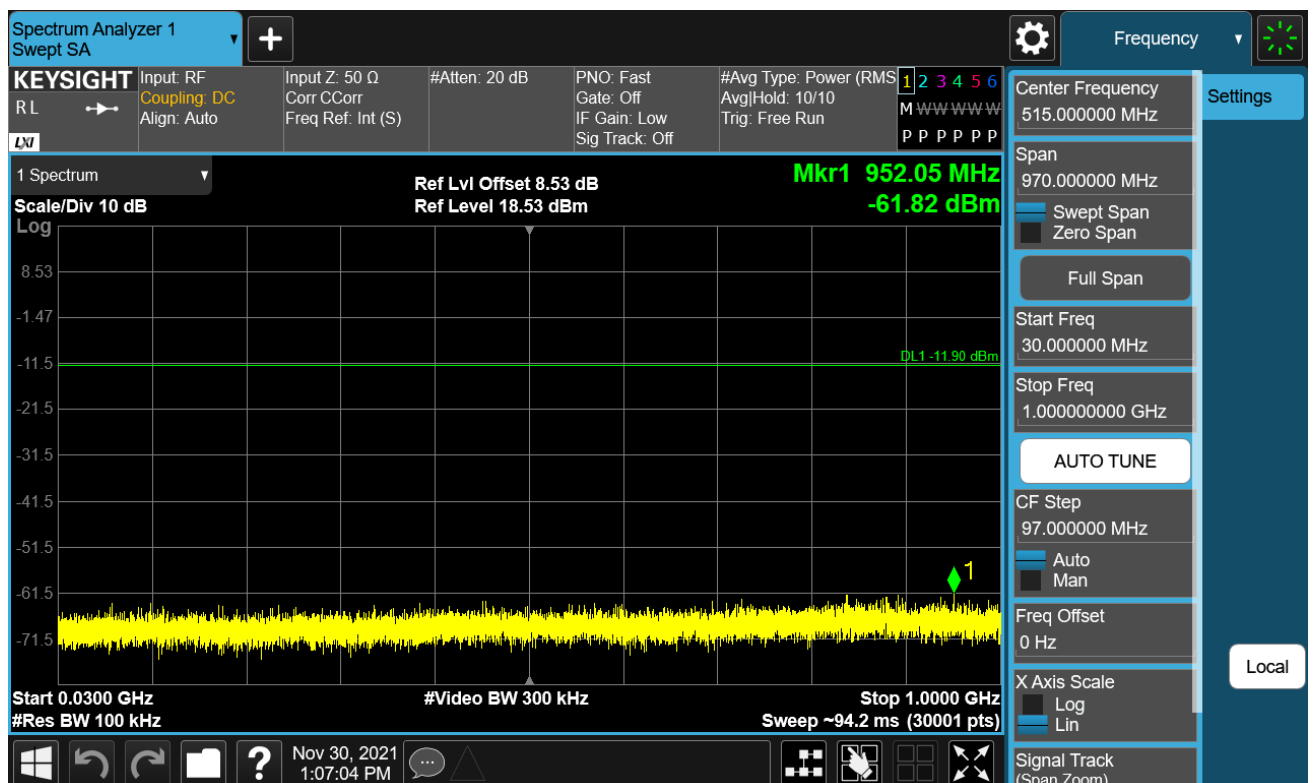
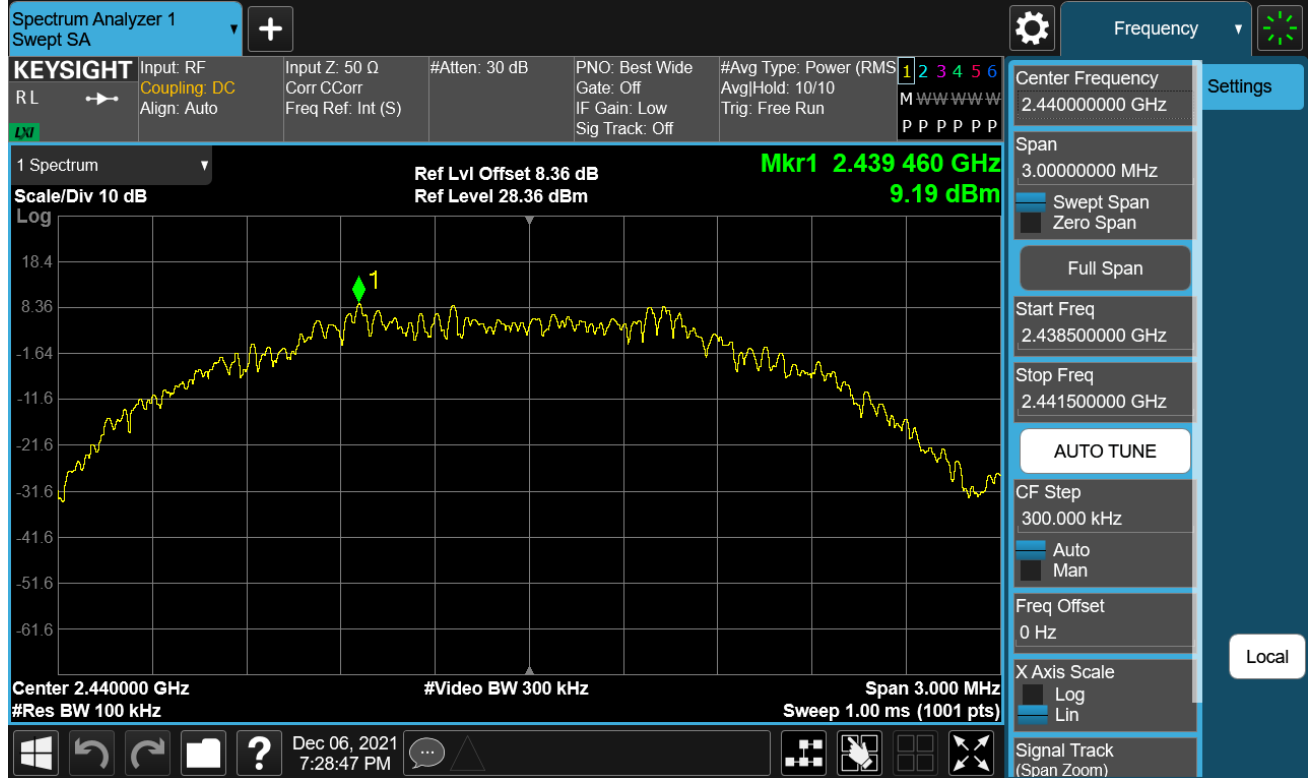
Data Rate, 2Mbps

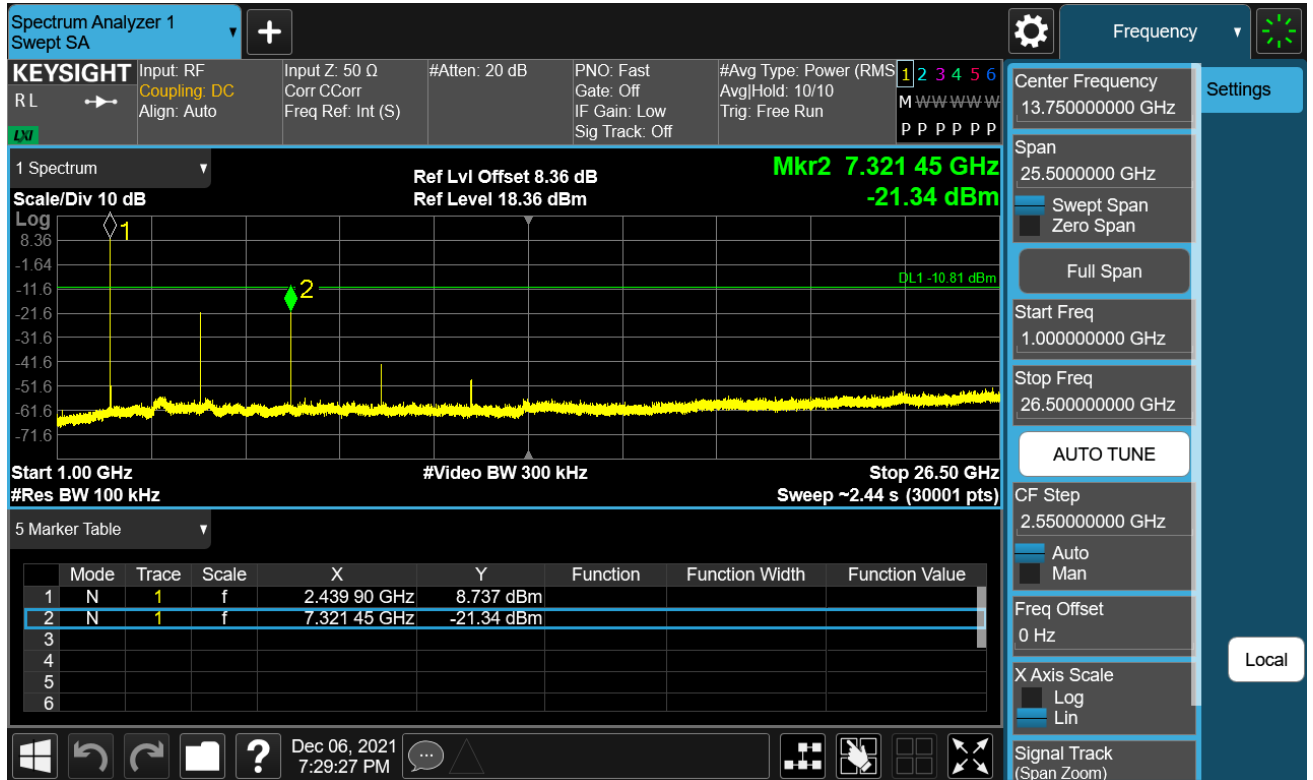
Low Channel



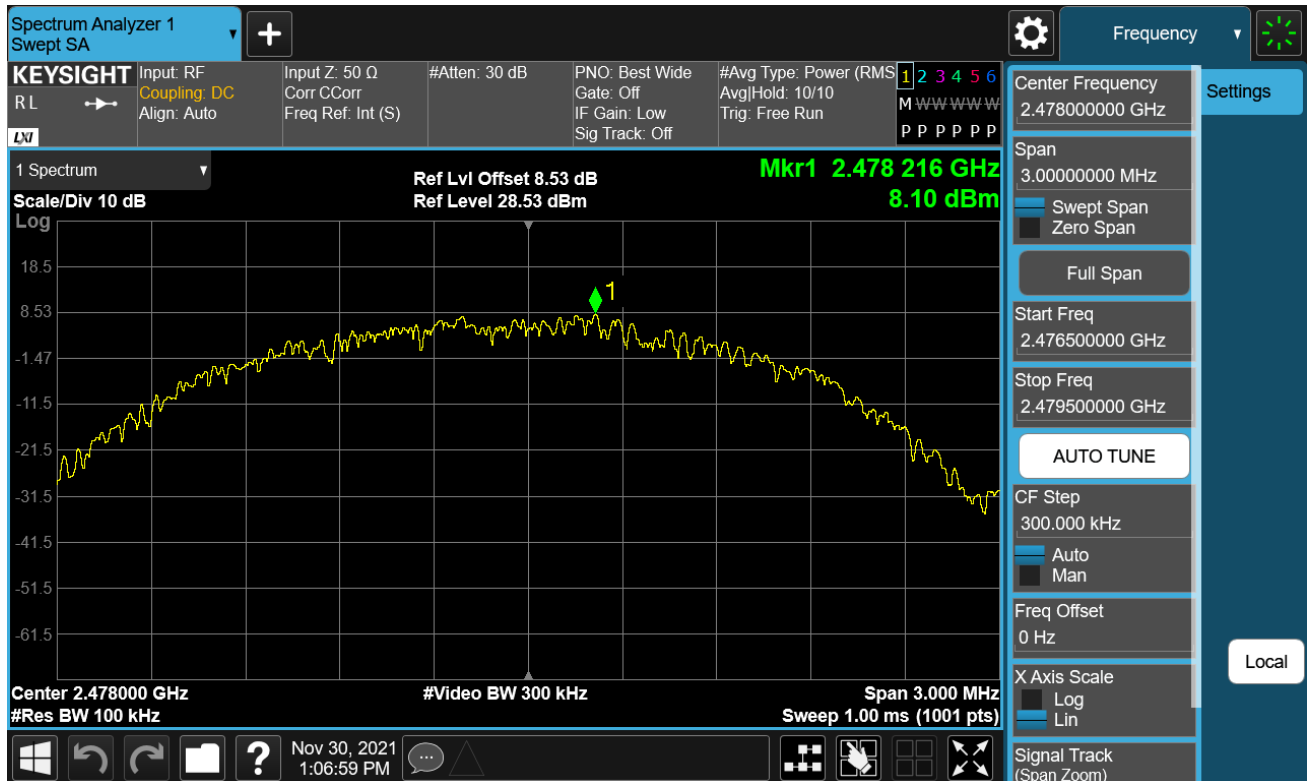


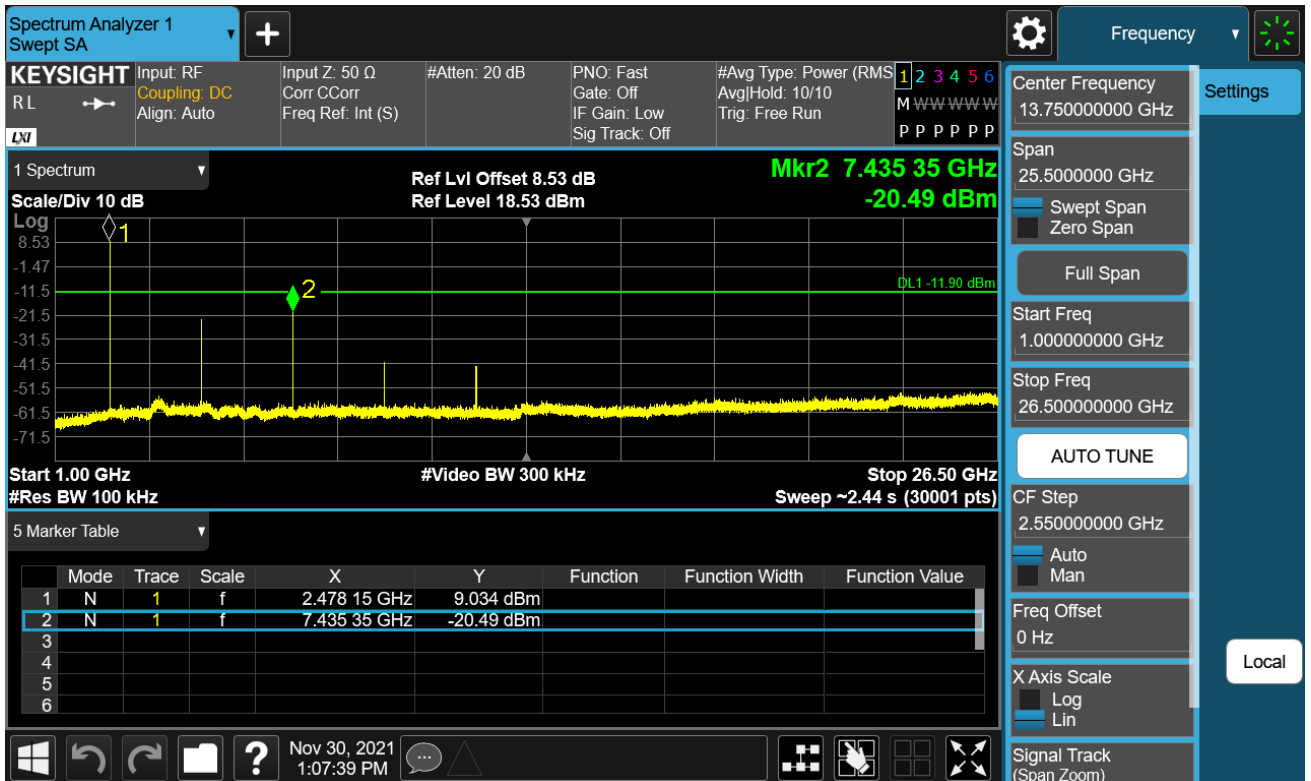
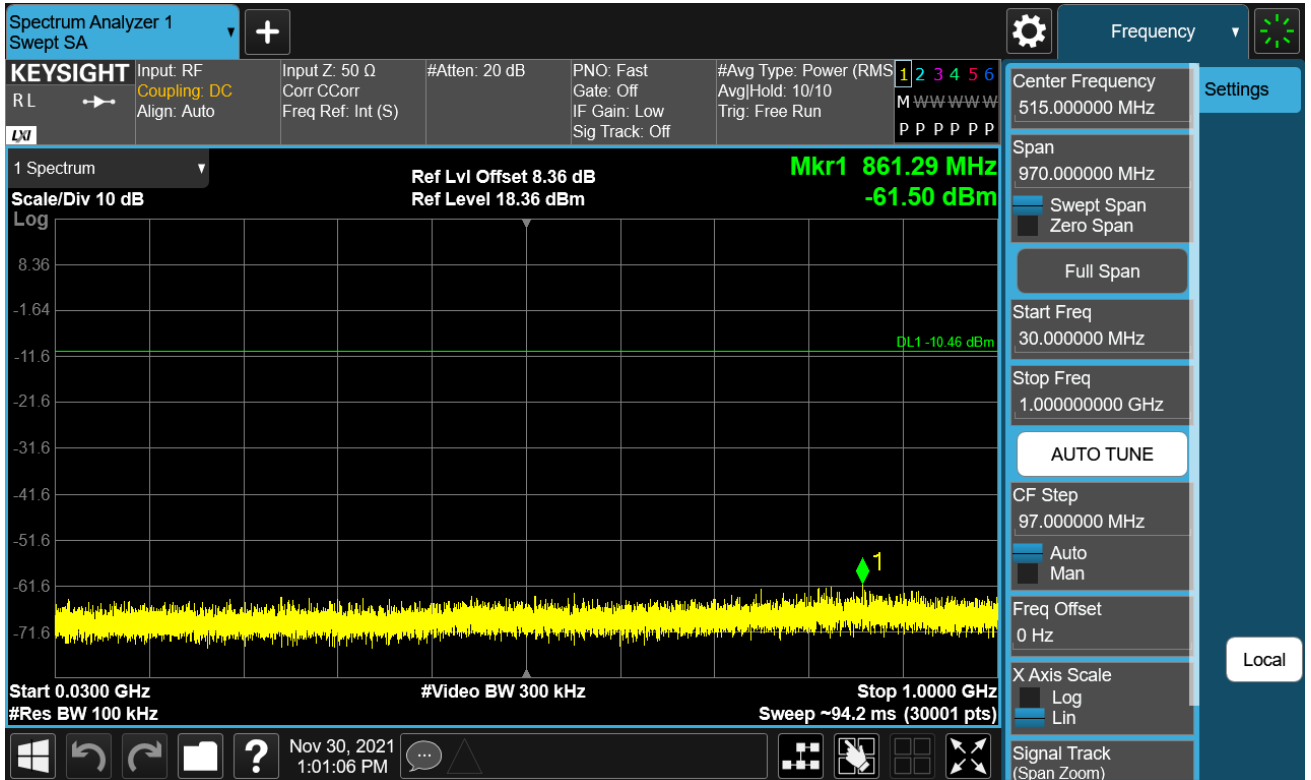
Middle Channel





High Channel





Low Channel_Band Edge

Spectrum Analyzer 1 Swept SA

KEYSIGHT Input: RF Coupling: DC Align: Auto Input Z: 50 Ω Corr CCorr Freq Ref: Int (S) #Atten: 30 dB PNO: Fast Gate: Off IF Gain: Low Sig Track: Off #Avg Type: Power (RMS) AvglHold: 300/300 Trig: Free Run

Center Frequency: 2.352500000 GHz

Span: 105.000000 MHz

Start Freq: 2.300000000 GHz

Stop Freq: 2.405000000 GHz

AUTO TUNE

CF Step: 10.500000 MHz

Freq Offset: 0 Hz

X Axis Scale: Log

Signal Track (Span Zoom)

Ref Lvl Offset 8.36 dB
Ref Level 20.00 dBm

Mkr5 2.391 455 GHz
-49.71 dBm

DL1 -9.87 dBm

Scale/Div 10 dB

Log

Start 2.30000 GHz #Res BW 100 kHz #Video BW 300 kHz Stop 2.40500 GHz Sweep 10.1 ms (1001 pts)

5 Marker Table

Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	2.403 845 GHz	10.13 dBm		
2	N	1	f	2.400 000 GHz	-52.05 dBm		
3	N	1	f	2.390 000 GHz	-52.18 dBm		
4	N	1	f	2.310 000 GHz	-53.95 dBm		
5	N	1	f	2.391 455 GHz	-49.71 dBm		
6							

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High Channel_Band Edge

Spectrum Analyzer 1 Swept SA

KEYSIGHT Input: RF Coupling: DC Align: Auto Input Z: 50 Ω Corr CCorr Freq Ref: Int (S) #Atten: 30 dB PNO: Fast Gate: Off IF Gain: Low Sig Track: Off #Avg Type: Power (RMS) AvglHold: 300/300 Trig: Free Run

Center Frequency: 2.510000000 GHz

Span: 80.000000 MHz

Start Freq: 2.470000000 GHz

Stop Freq: 2.550000000 GHz

AUTO TUNE

CF Step: 8.000000 MHz

Freq Offset: 0 Hz

X Axis Scale: Log

Signal Track (Span Zoom)

Ref Lvl Offset 8.53 dB
Ref Level 20.00 dBm

Mkr4 2.540 88 GHz
-49.74 dBm

DL1 -10.09 dBm

Scale/Div 10 dB

Log

Start 2.47000 GHz #Res BW 100 kHz #Video BW 300 kHz Stop 2.55000 GHz Sweep 7.67 ms (1001 pts)

5 Marker Table

Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	2.477 92 GHz	9.906 dBm		
2	N	1	f	2.483 50 GHz	-52.08 dBm		
3	N	1	f	2.500 00 GHz	-53.16 dBm		
4	N	1	f	2.540 88 GHz	-49.74 dBm		
5							
6							

Nov 30, 2021 1:06:51 PM

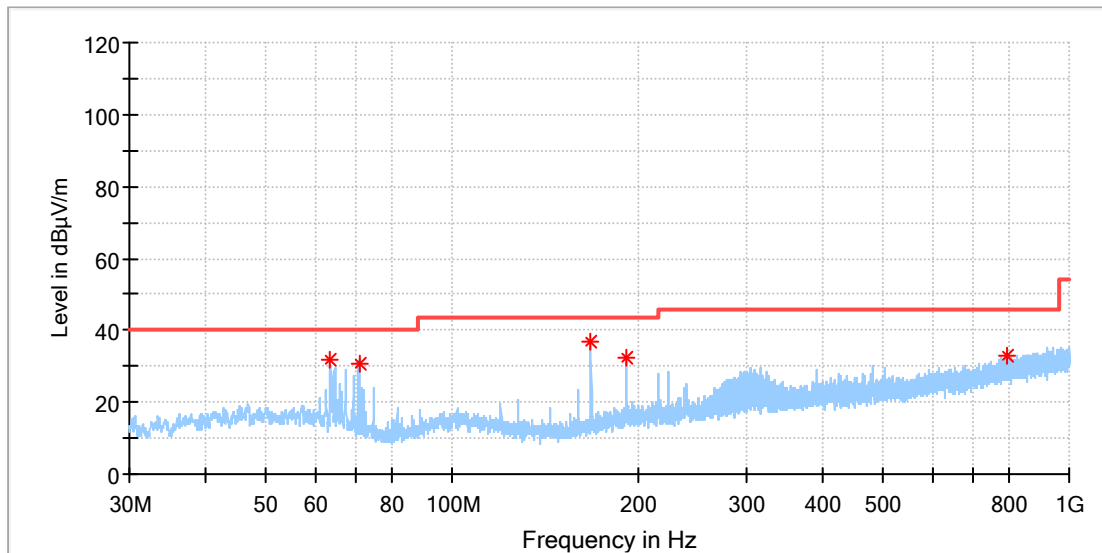
Appendix B.4: Test Results of Radiated Spurious Emissions

Note 1: Testing was carried out within frequency range 9 kHz to the tenth harmonics. The measurement results below 30MHz and above 18GHz were greater than 20dB below the limit, so only the radiated spurious emissions from 30MHz to 18GHz were reported.

Data Rate, 1Mbps

EUT Information

EUT Name:	2.4GHz Digital Wireless Stereo Headphone
Model:	NS-HAWHP2
Test Mode:	Low channel
Order No/Sample No:	168343239/A003163351-002
Test Voltage::	AC 120V, 60Hz
Remark:	Temp 24 Humi:50%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

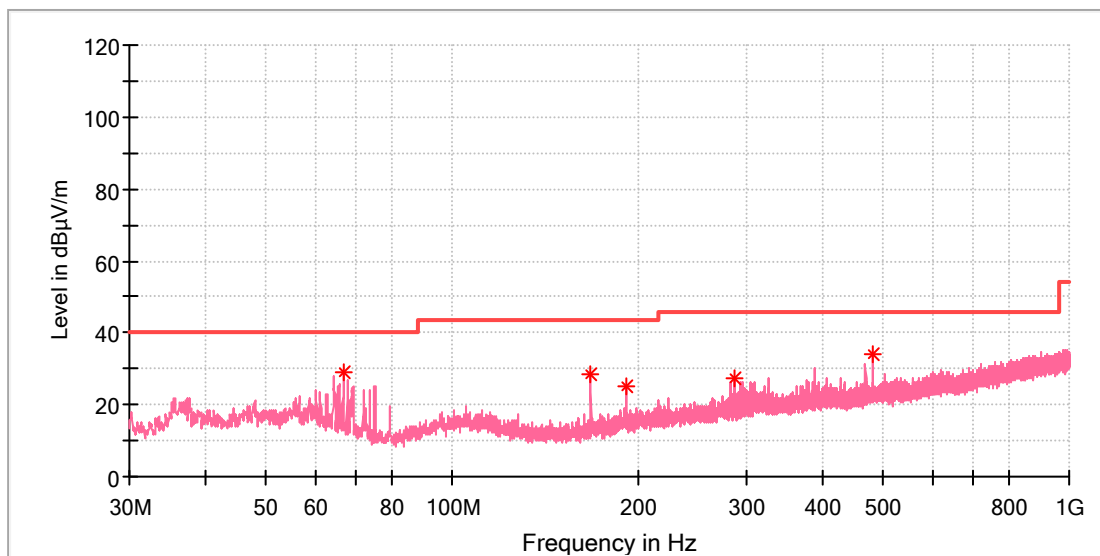


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
63.513500	31.76	40.00	8.24	100.0	H	83.0	-19.7
70.691500	30.76	40.00	9.24	100.0	H	314.0	-22.1
168.031000	37.08	43.50	6.42	100.0	H	1.0	-21.3
191.990000	32.50	43.50	11.00	100.0	H	33.0	-19.4
792.953500	33.09	46.00	12.91	100.0	H	55.0	-6.5

EUT Information

EUT Name:	2.4GHz Digital Wireless Stereo Headphone
Model:	NS-HAWHP2
Test Mode:	Low channel
Order No/Sample No:	168343239/A003163351-002
Test Voltage::	AC 120V, 60Hz
Remark:	Temp 24 Humi:50%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

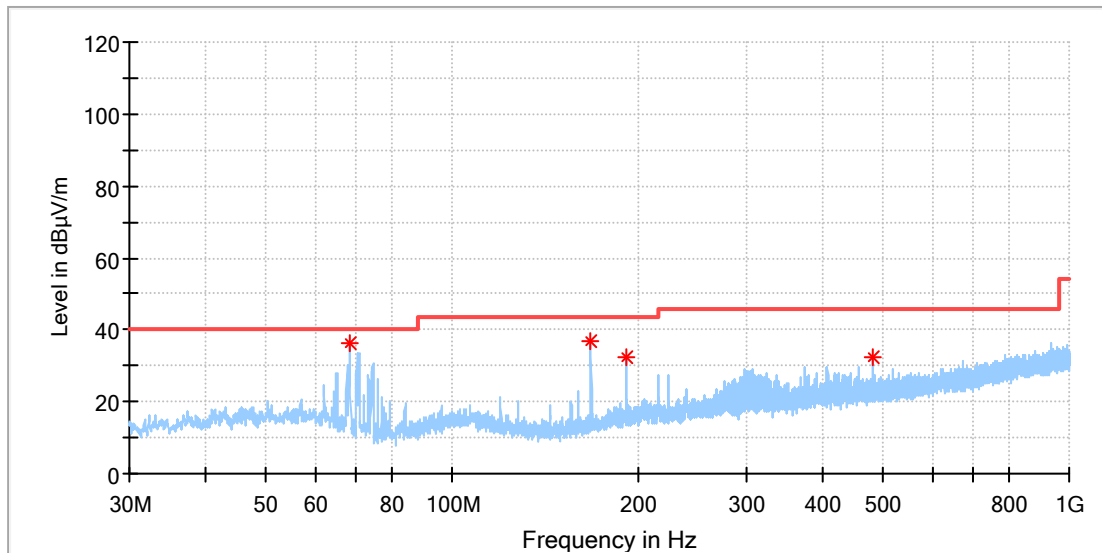


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
66.617500	29.01	40.00	10.99	100.0	V	35.0	-20.6
168.031000	28.25	43.50	15.25	100.0	V	84.0	-21.3
191.990000	24.98	43.50	18.52	100.0	V	110.0	-19.4
286.662000	27.53	46.00	18.47	100.0	V	76.0	-16.6
480.031500	34.05	46.00	11.95	100.0	V	98.0	-12.2

EUT Information

EUT Name: 2.4GHz Digital Wireless Stereo Headphone
 Model: NS-HAWHP2
 Test Mode: High Channel
 Order No/Sample No: 168343239/A003163351-002
 Test Voltage:: AC 120V, 60Hz
 Remark: Temp 24 Humi:50%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

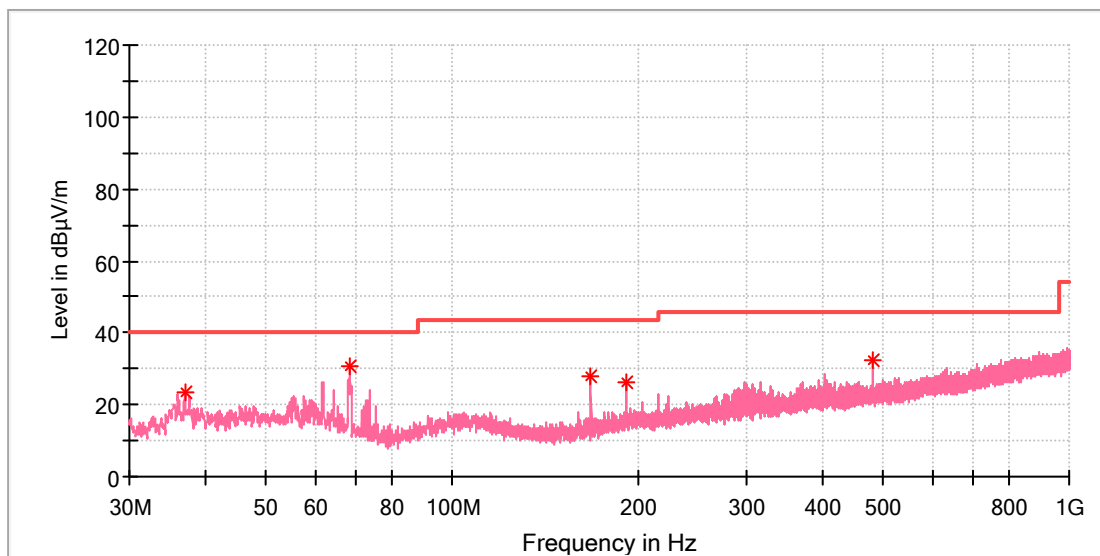


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
68.266500	36.33	40.00	3.67	100.0	H	105.0	-21.2
168.031000	36.85	43.50	6.65	100.0	H	13.0	-21.3
191.990000	32.51	43.50	10.99	100.0	H	87.0	-19.4
480.031500	32.58	46.00	13.42	100.0	H	203.0	-12.2

EUT Information

EUT Name:	2.4GHz Digital Wireless Stereo Headphone
Model:	NS-HAWHP2
Test Mode:	High Channel
Order No/Sample No:	168343239/A003163351-002
Test Voltage::	AC 120V, 60Hz
Remark:	Temp 24 Humi:50%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

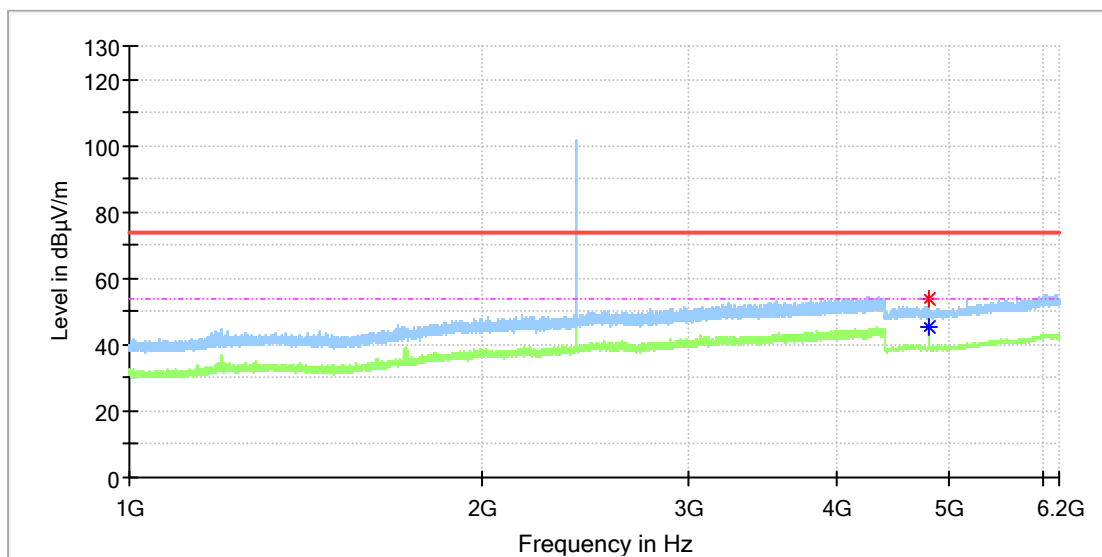


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
36.935500	23.23	40.00	16.77	100.0	V	61.0	-21.2
68.169500	30.76	40.00	9.24	100.0	V	253.0	-21.2
168.031000	27.83	43.50	15.67	100.0	V	102.0	-21.3
191.990000	26.43	43.50	17.07	100.0	V	109.0	-19.4
480.031500	32.50	46.00	13.50	100.0	V	102.0	-12.2

EUT Information

EUT Name: 2.4GHz Digital Wireless Stereo Headphone
 Model: NS-HAWHP2
 Test Mode: Low Channel
 Order No/Sample No: 168343239/A003163351-002
 Test Voltage:: AC 120V, 60Hz
 Remark: Temp 24 Humi:50%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

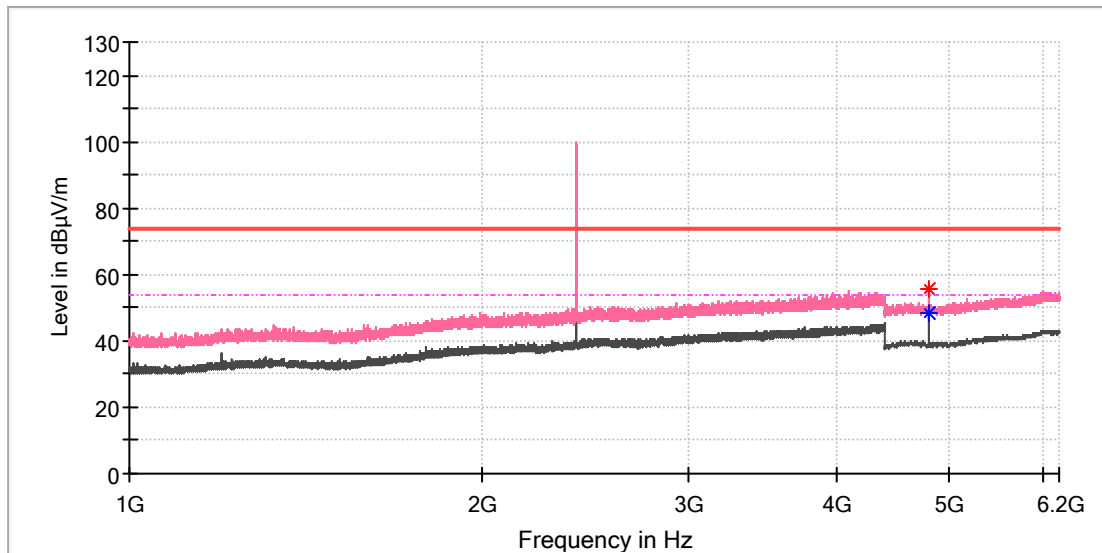


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4803.500000	---	45.61	54.00	8.39	100.0	H	47.0	11.8
4804.000000	53.52	---	74.00	20.48	100.0	H	222.0	11.8

EUT Information

EUT Name:	2.4GHz Digital Wireless Stereo Headphone
Model:	NS-HAWHP2
Test Mode:	Low Channel
Order No/Sample No:	168343239/A003163351-002
Test Voltage::	AC 120V, 60Hz
Remark:	Temp 24 Humi:50%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

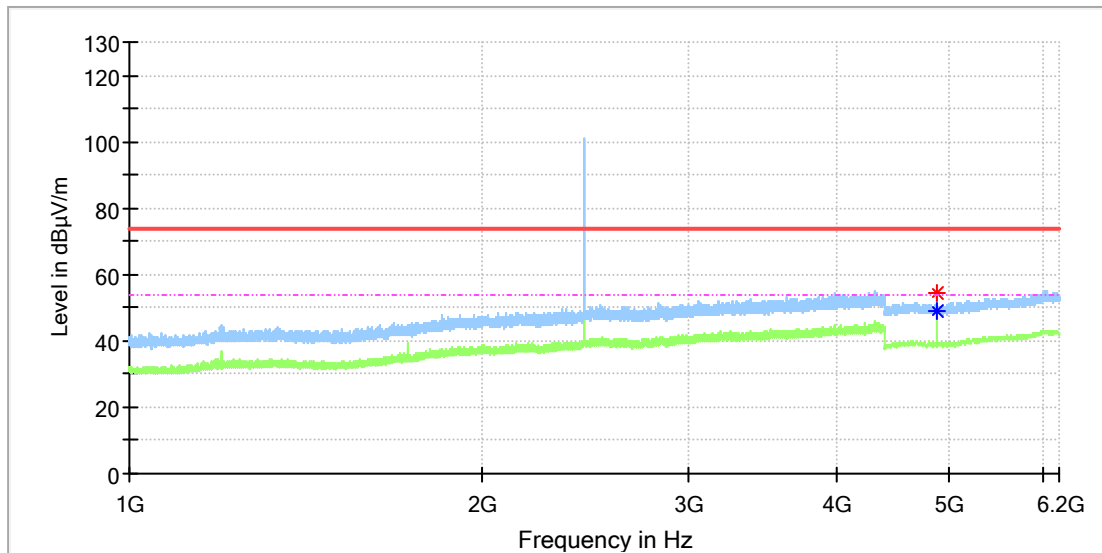


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4803.500000	55.46	---	74.00	18.54	100.0	V	182.0	11.8
4803.500000	---	48.08	54.00	5.92	100.0	V	182.0	11.8

EUT Information

EUT Name: 2.4GHz Digital Wireless Stereo Headphone
 Model: NS-HAWHP2
 Test Mode: Middle Channel
 Order No/Sample No: 168343239/A003163351-002
 Test Voltage:: AC 120V, 60Hz
 Remark: Temp 24 Humi:50%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

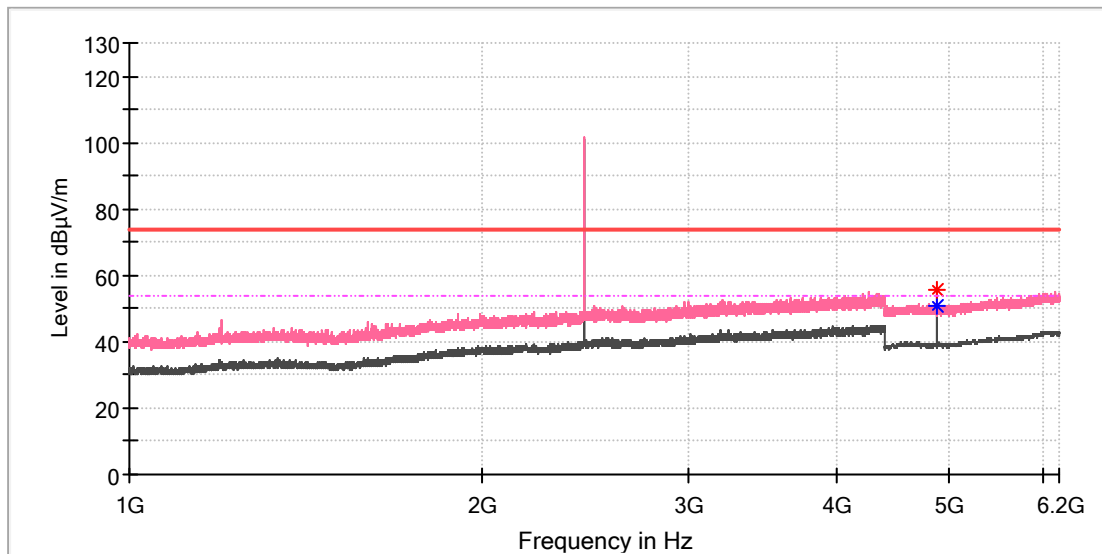


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4882.000000	---	49.11	54.00	4.89	100.0	H	212.0	11.8
4882.000000	54.57	---	74.00	19.43	100.0	H	212.0	11.8

EUT Information

EUT Name:	2.4GHz Digital Wireless Stereo Headphone
Model:	NS-HAWHP2
Test Mode:	Middle Channel
Order No/Sample No:	168343239/A003163351-002
Test Voltage::	AC 120V, 60Hz
Remark:	Temp 24 Humi:50%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

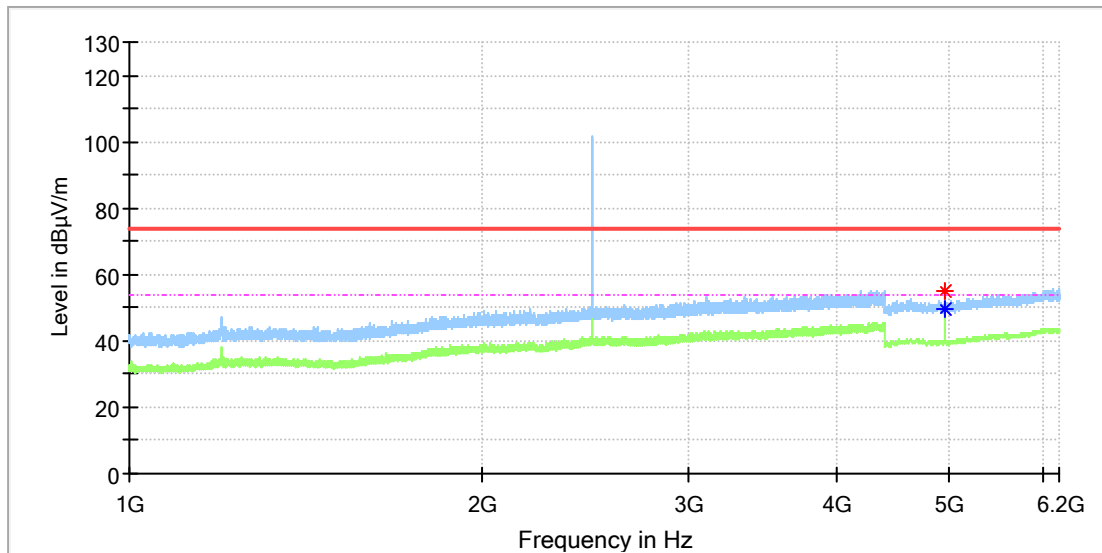


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4882.000000	55.70	---	74.00	18.30	100.0	V	45.0	11.8
4882.000000	---	50.71	54.00	3.29	100.0	V	45.0	11.8

EUT Information

EUT Name: 2.4GHz Digital Wireless Stereo Headphone
 Model: NS-HAWHP2
 Test Mode: High Channel
 Order No/Sample No: 168343239/A003163351-002
 Test Voltage:: AC 120V, 60Hz
 Remark: Temp 24 Humi:50%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

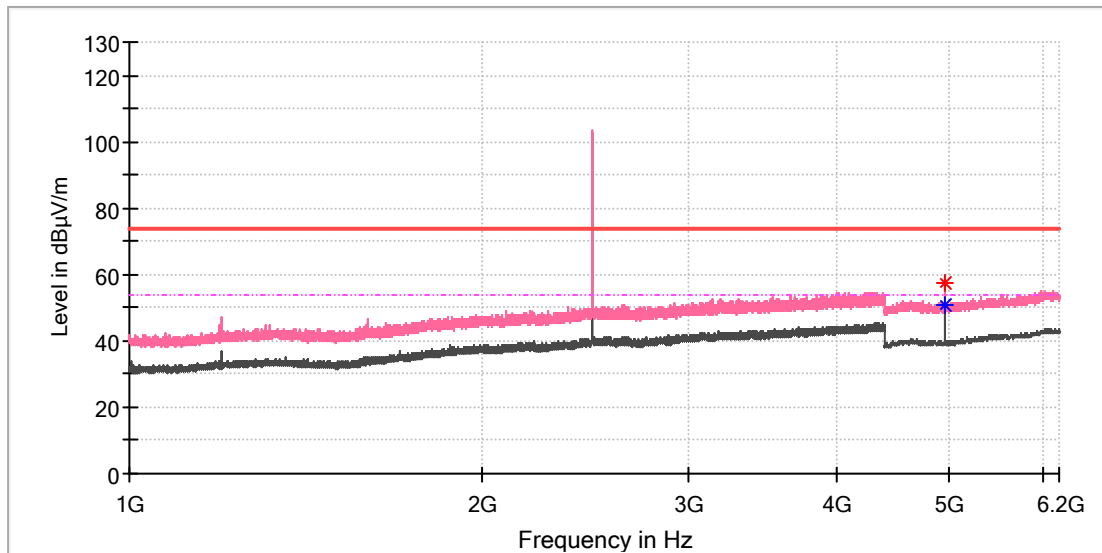


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4960.000000	---	49.65	54.00	4.35	100.0	H	260.0	11.8
4960.000000	55.27	---	74.00	18.73	100.0	H	260.0	11.8

EUT Information

EUT Name: 2.4GHz Digital Wireless Stereo Headphone
 Model: NS-HAWHP2
 Test Mode: High Channel
 Order No/Sample No: 168343239/A003163351-002
 Test Voltage:: AC 120V, 60Hz
 Remark: Temp 24 Humi:50%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

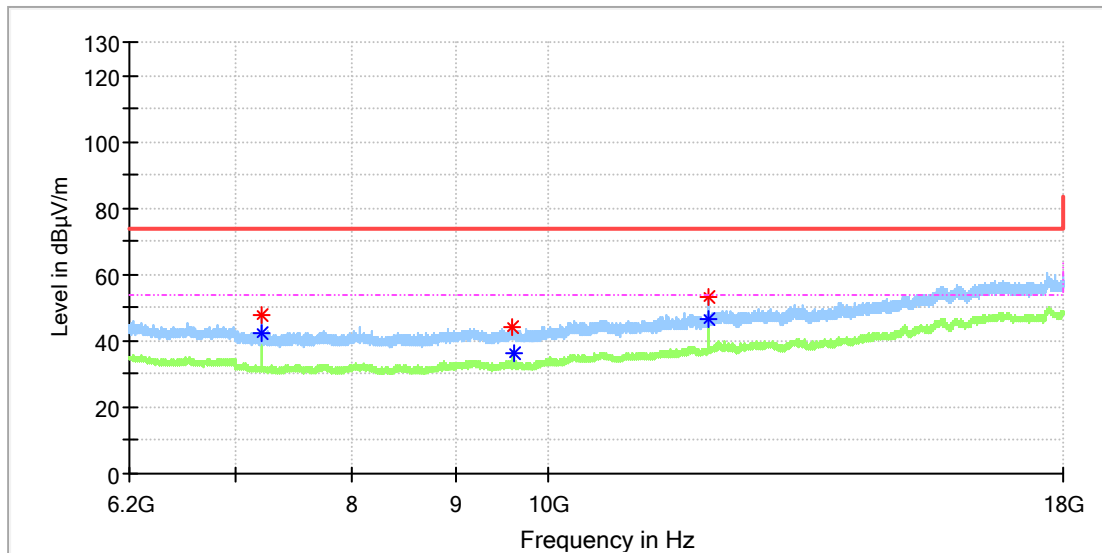


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4959.500000	57.40	---	74.00	16.60	100.0	V	176.0	11.8
4960.000000	---	50.94	54.00	3.06	100.0	V	170.0	11.8

EUT Information

EUT Name: 2.4GHz Digital Wireless Stereo Headphone
 Model: NS-HAWHP2
 Test Mode: Low Channel
 Order No/Sample No: 168343239/A003163351-002
 Test Voltage:: AC 120V, 60Hz
 Remark: Temp 24 Humi:50%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

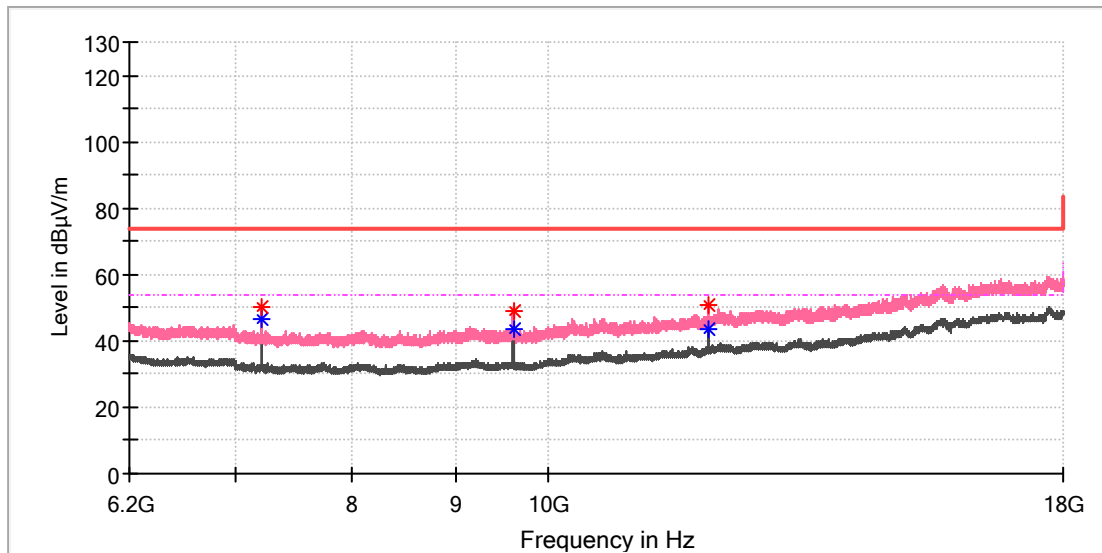


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7205.458333	---	42.22	54.00	11.78	100.0	H	259.0	8.8
7206.441667	47.94	---	74.00	26.06	100.0	H	259.0	8.8
9606.758333	44.30	---	74.00	29.70	100.0	H	82.0	10.4
9608.725000	---	36.43	54.00	17.57	100.0	H	21.0	10.4
12010.516667	53.08	---	74.00	20.92	100.0	H	52.0	14.0
12011.008333	---	46.74	54.00	7.26	100.0	H	52.0	14.0

EUT Information

EUT Name: 2.4GHz Digital Wireless Stereo Headphone
 Model: NS-HAWHP2
 Test Mode: Low Channel
 Order No/Sample No: 168343239/A003163351-002
 Test Voltage:: AC 120V, 60Hz
 Remark: Temp 24 Humi:50%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

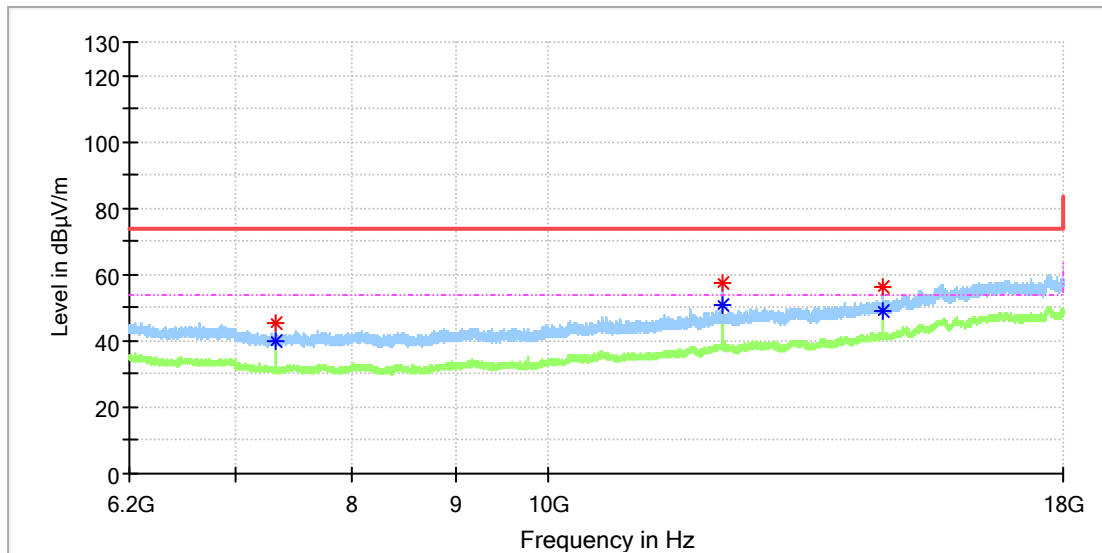


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7204.475000	50.40	---	74.00	23.60	100.0	V	54.0	8.8
7204.966667	---	46.61	54.00	7.39	100.0	V	54.0	8.8
9608.233333	---	43.37	54.00	10.63	100.0	V	195.0	10.4
9608.725000	48.69	---	74.00	25.31	100.0	V	195.0	10.4
12008.550000	---	43.52	54.00	10.48	100.0	V	225.0	14.0
12011.008333	50.91	---	74.00	23.09	100.0	V	310.0	14.0

EUT Information

EUT Name: 2.4GHz Digital Wireless Stereo Headphone
 Model: NS-HAWHP2
 Test Mode: Middle Channel
 Order No/Sample No: 168343239/A003163351-002
 Test Voltage:: AC 120V, 60Hz
 Remark: Temp 24 Humi:50%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

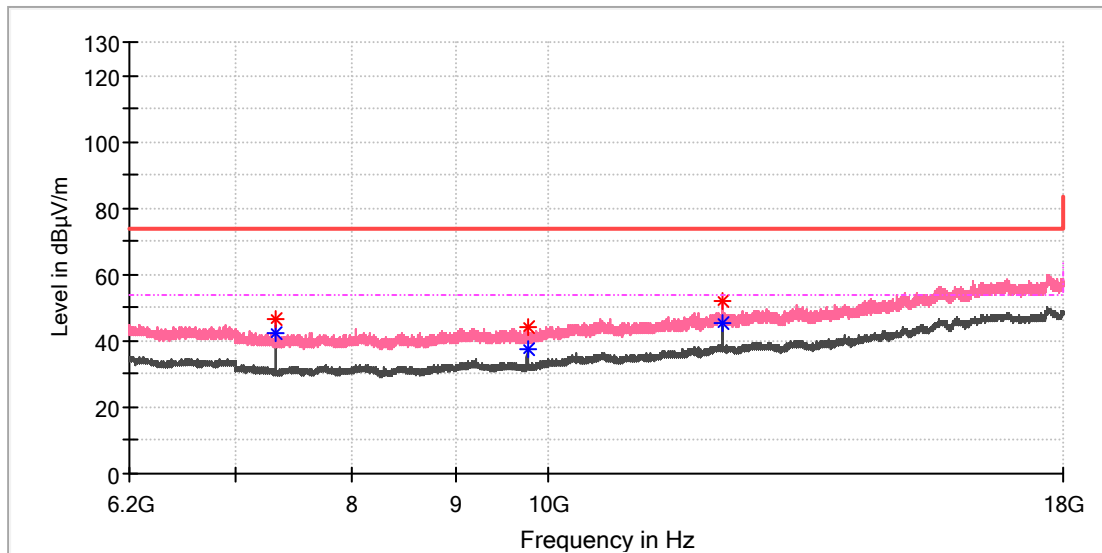


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7321.983333	45.63	---	74.00	28.37	100.0	H	229.0	8.2
7323.458333	---	39.92	54.00	14.08	100.0	H	259.0	8.2
12203.741667	---	50.65	54.00	3.35	100.0	H	63.0	14.7
12205.708333	57.23	---	74.00	16.77	100.0	H	63.0	14.7
14646.833333	56.07	---	74.00	17.93	100.0	H	63.0	17.1
14647.325000	---	48.90	54.00	5.10	100.0	H	63.0	17.1

EUT Information

EUT Name: 2.4GHz Digital Wireless Stereo Headphone
 Model: NS-HAWHP2
 Test Mode: Middle Channel
 Order No/Sample No: 168343239/A003163351-002
 Test Voltage:: AC 120V, 60Hz
 Remark: Temp 24 Humi:50%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

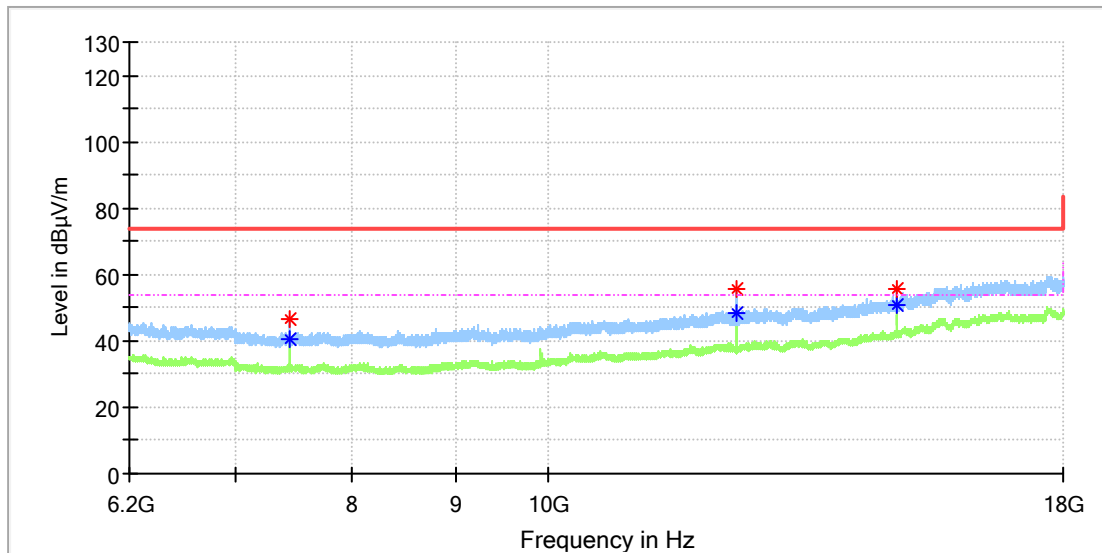


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7323.458333	46.55	---	74.00	27.45	100.0	V	214.0	8.2
7323.458333	---	42.19	54.00	11.81	100.0	V	214.0	8.2
9763.108333	43.97	---	74.00	30.03	100.0	V	186.0	10.4
9763.108333	---	37.43	54.00	16.57	100.0	V	186.0	10.4
12203.250000	---	45.37	54.00	8.63	100.0	V	51.0	14.7
12205.708333	52.19	---	74.00	21.81	100.0	V	51.0	14.7

EUT Information

EUT Name: 2.4GHz Digital Wireless Stereo Headphone
 Model: NS-HAWHP2
 Test Mode: High Channel
 Order No/Sample No: 168343239/A003163351-002
 Test Voltage:: AC 120V, 60Hz
 Remark: Temp 24 Humi:50%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

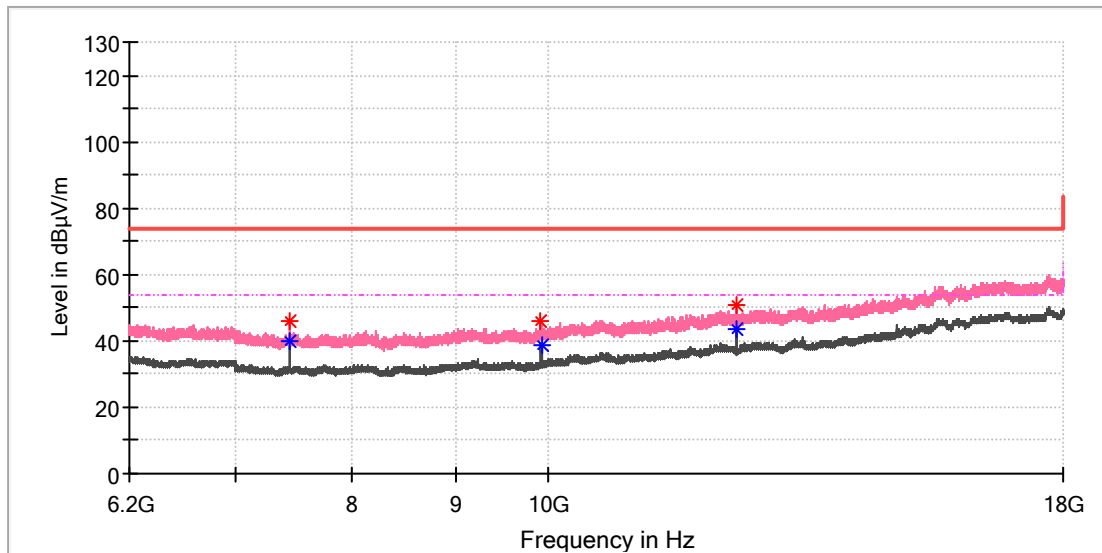


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7439.000000	46.37	---	74.00	27.63	100.0	H	228.0	8.4
7439.491667	---	40.28	54.00	13.72	100.0	H	228.0	8.4
12398.441667	55.61	---	74.00	18.39	100.0	H	67.0	14.7
12398.441667	---	48.27	54.00	5.73	100.0	H	67.0	14.7
14878.408333	---	50.89	54.00	3.11	100.0	H	51.0	17.5
14881.358333	55.85	---	74.00	18.15	100.0	H	51.0	17.5

EUT Information

EUT Name: 2.4GHz Digital Wireless Stereo Headphone
 Model: NS-HAWHP2
 Test Mode: High Channel
 Order No/Sample No: 168343239/A003163351-002
 Test Voltage:: AC 120V, 60Hz
 Remark: Temp 24 Humi:50%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin



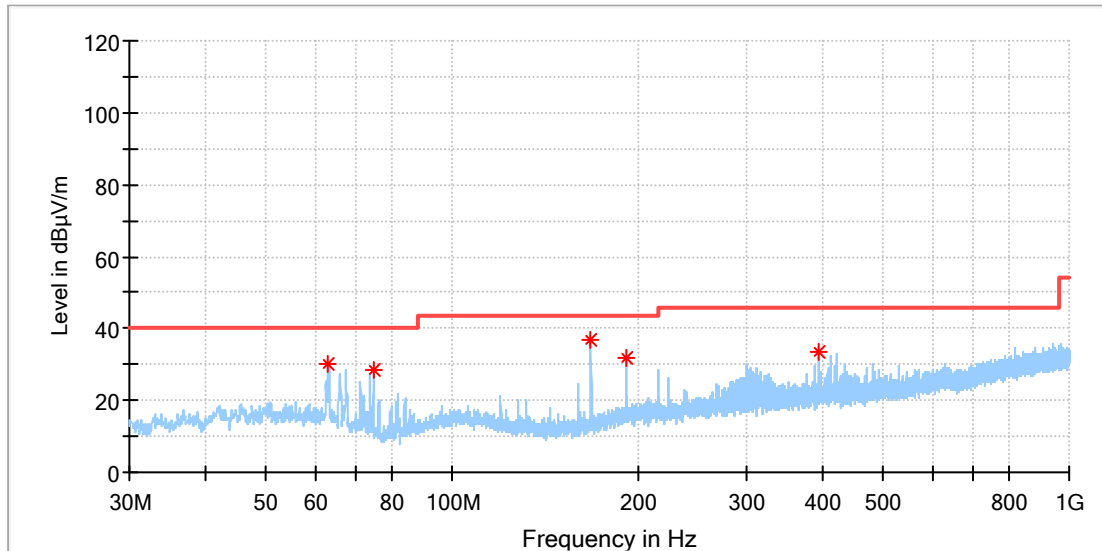
Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7439.983333	46.04	---	74.00	27.96	100.0	V	46.0	8.4
7439.983333	---	40.13	54.00	13.87	100.0	V	46.0	8.4
9918.966667	45.94	---	74.00	28.06	100.0	V	5.0	10.8
9920.441667	---	38.62	54.00	15.38	100.0	V	198.0	10.8
12400.900000	50.50	---	74.00	23.50	100.0	V	226.0	14.7
12400.900000	---	43.43	54.00	10.57	100.0	V	226.0	14.7

Data Rate, 2Mbps

EUT Information

EUT Name:	2.4GHz Digital Wireless Stereo Headphone
Model:	NS-HAWHP2
Test Mode:	Low Channel
Order No/Sample No:	168343239/A003163351-002
Test Voltage::	AC 120V, 60Hz
Remark:	Temp 24 Humi:50%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

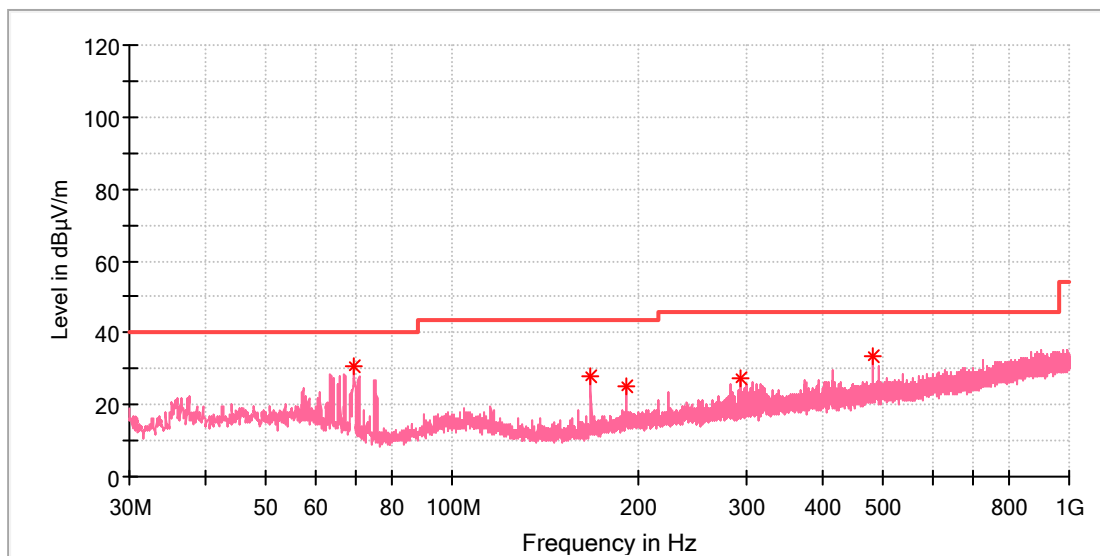


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
63.125500	30.23	40.00	9.77	100.0	H	169.0	-19.6
74.571500	28.30	40.00	11.70	100.0	H	151.0	-23.3
168.031000	37.01	43.50	6.49	100.0	H	359.0	-21.3
191.990000	31.69	43.50	11.81	100.0	H	105.0	-19.4
393.701500	33.32	46.00	12.68	100.0	H	141.0	-13.8

EUT Information

EUT Name:	2.4GHz Digital Wireless Stereo Headphone
Model:	NS-HAWHP2
Test Mode:	Low Channel
Order No/Sample No:	168343239/A003163351-002
Test Voltage::	AC 120V, 60Hz
Remark:	Temp 24 Humi:50%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

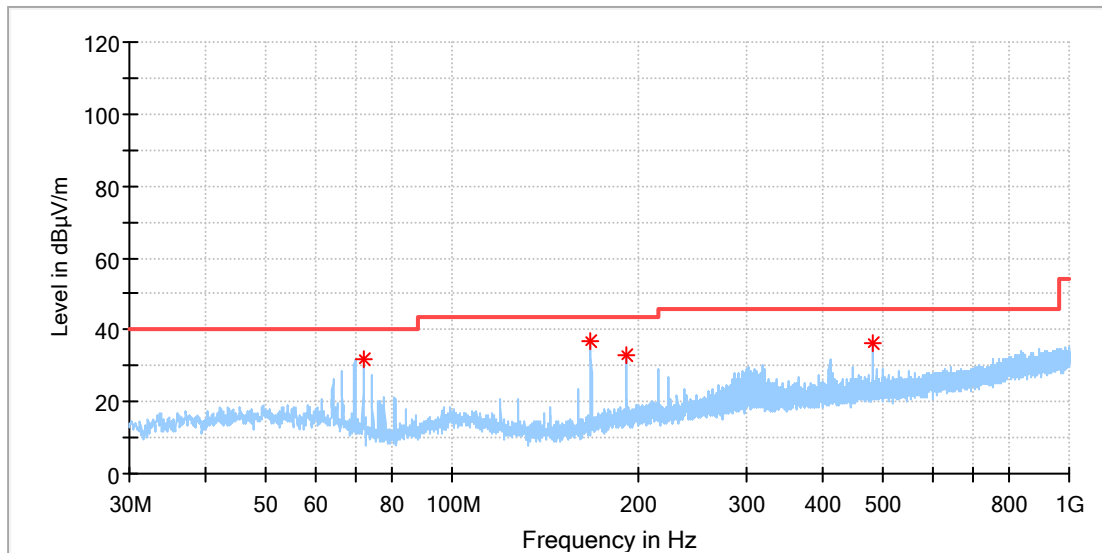


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
69.430500	30.51	40.00	9.49	100.0	V	62.0	-21.6
168.031000	27.73	43.50	15.77	100.0	V	101.0	-21.3
191.990000	25.21	43.50	18.29	100.0	V	84.0	-19.4
293.937000	27.38	46.00	18.62	100.0	V	91.0	-16.5
480.031500	33.37	46.00	12.63	100.0	V	4.0	-12.2

EUT Information

EUT Name: 2.4GHz Digital Wireless Stereo Headphone
 Model: NS-HAWHP2
 Test Mode: High Channel
 Order No/Sample No: 168343239/A003163351-002
 Test Voltage:: AC 120V, 60Hz
 Remark: Temp 24 Humi:50%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

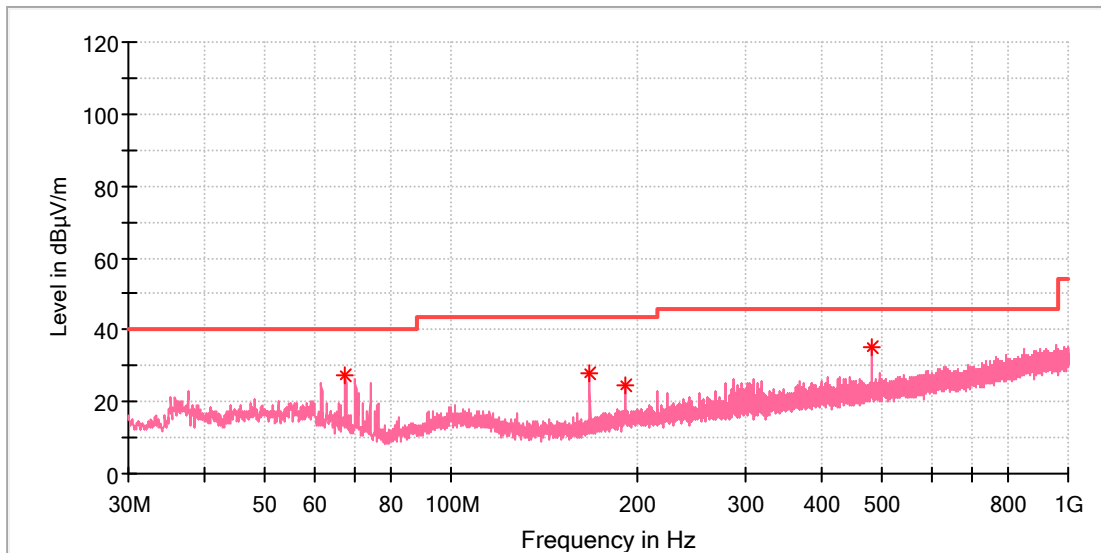


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
71.952500	32.08	40.00	7.92	100.0	H	136.0	-22.5
168.031000	37.11	43.50	6.39	100.0	H	0.0	-21.3
191.990000	33.05	43.50	10.45	100.0	H	28.0	-19.4
480.031500	36.41	46.00	9.59	100.0	H	145.0	-12.2

EUT Information

EUT Name: 2.4GHz Digital Wireless Stereo Headphone
 Model: NS-HAWHP2
 Test Mode: High Channel
 Order No/Sample No: 168343239/A003163351-002
 Test Voltage:: AC 120V, 60Hz
 Remark: Temp 24 Humi:50%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

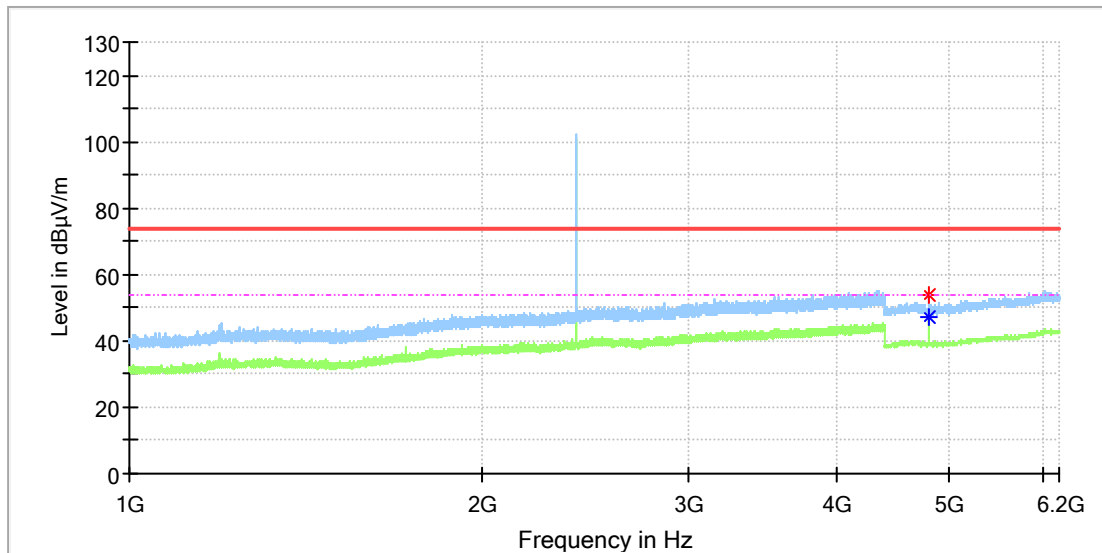


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
67.393500	27.45	40.00	12.55	100.0	V	354.0	-20.9
168.031000	27.67	43.50	15.83	100.0	V	79.0	-21.3
191.990000	24.65	43.50	18.85	100.0	V	88.0	-19.4
479.983000	35.10	46.00	10.90	100.0	V	349.0	-12.2

EUT Information

EUT Name:	2.4GHz Digital Wireless Stereo Headphone
Model:	NS-HAWHP2
Test Mode:	Low Channel
Order No/Sample No:	168343239/A003163351-002
Test Voltage::	AC 120V, 60Hz
Remark:	Temp 24 Humi:50%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

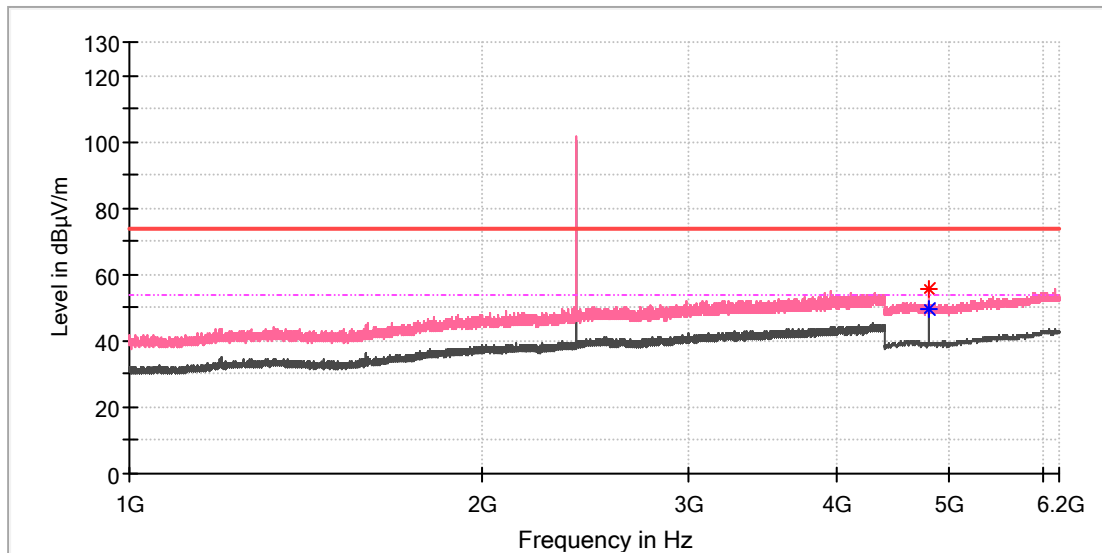


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4806.500000	54.09	---	74.00	19.91	100.0	H	218.0	11.8
4808.500000	---	47.26	54.00	6.74	100.0	H	218.0	11.8

EUT Information

EUT Name:	2.4GHz Digital Wireless Stereo Headphone
Model:	NS-HAWHP2
Test Mode:	Low Channel
Order No/Sample No:	168343239/A003163351-002
Test Voltage::	AC 120V, 60Hz
Remark:	Temp 24 Humi:50%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

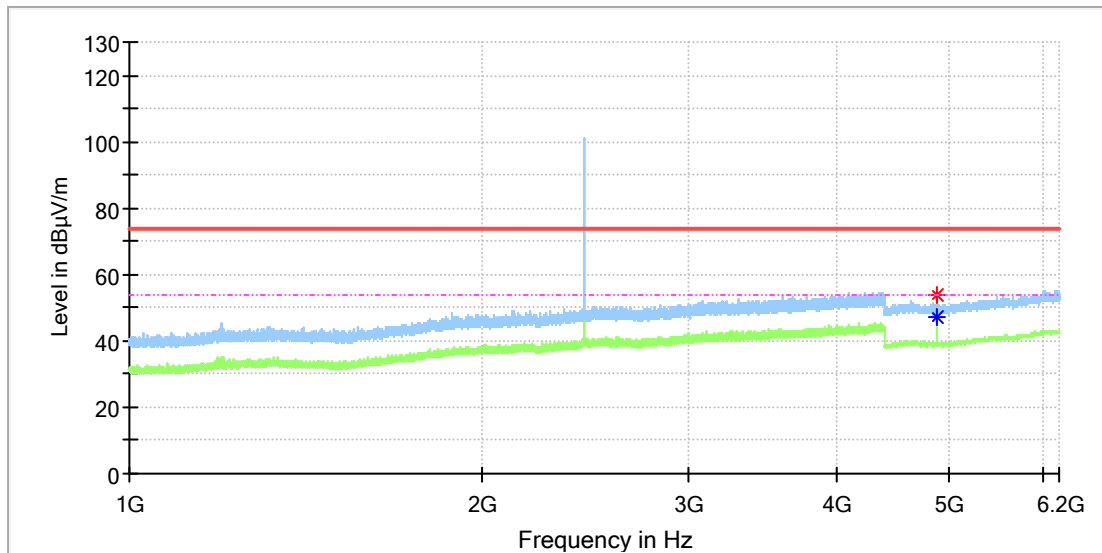


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4808.500000	---	49.50	54.00	4.50	100.0	V	182.0	11.8
4808.500000	55.86	---	74.00	18.14	100.0	V	182.0	11.8

EUT Information

EUT Name: 2.4GHz Digital Wireless Stereo Headphone
 Model: NS-HAWHP2
 Test Mode: Middle Channel
 Order No/Sample No: 168343239/A003163351-002
 Test Voltage:: AC 120V, 60Hz
 Remark: Temp 24 Humi:50%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

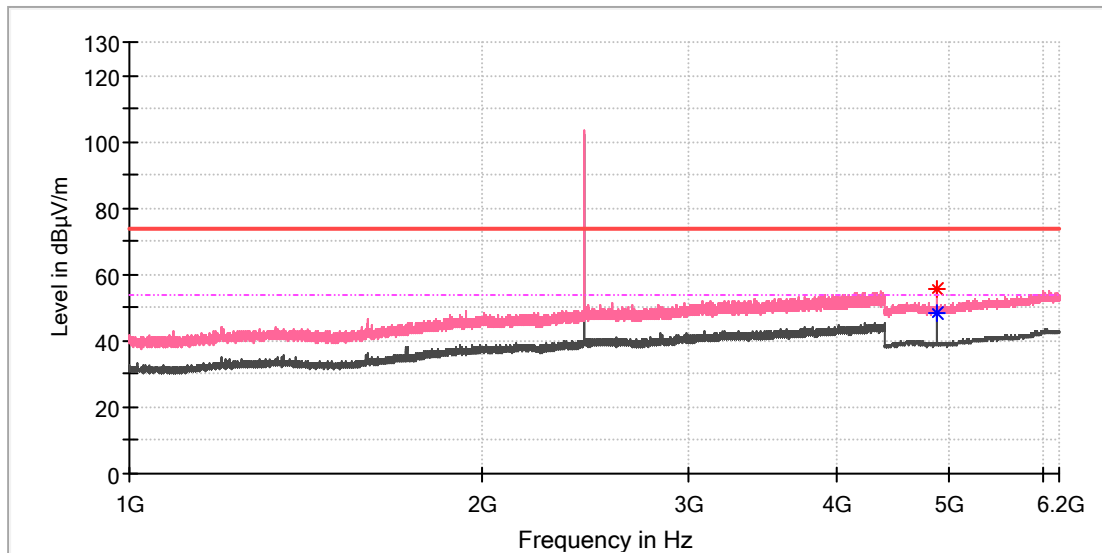


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4880.500000	53.86	---	74.00	20.14	100.0	H	218.0	11.8
4881.000000	---	46.89	54.00	7.11	100.0	H	218.0	11.8

EUT Information

EUT Name: 2.4GHz Digital Wireless Stereo Headphone
 Model: NS-HAWHP2
 Test Mode: Middle Channel
 Order No/Sample No: 168343239/A003163351-002
 Test Voltage:: AC 120V, 60Hz
 Remark: Temp 24 Humi:50%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

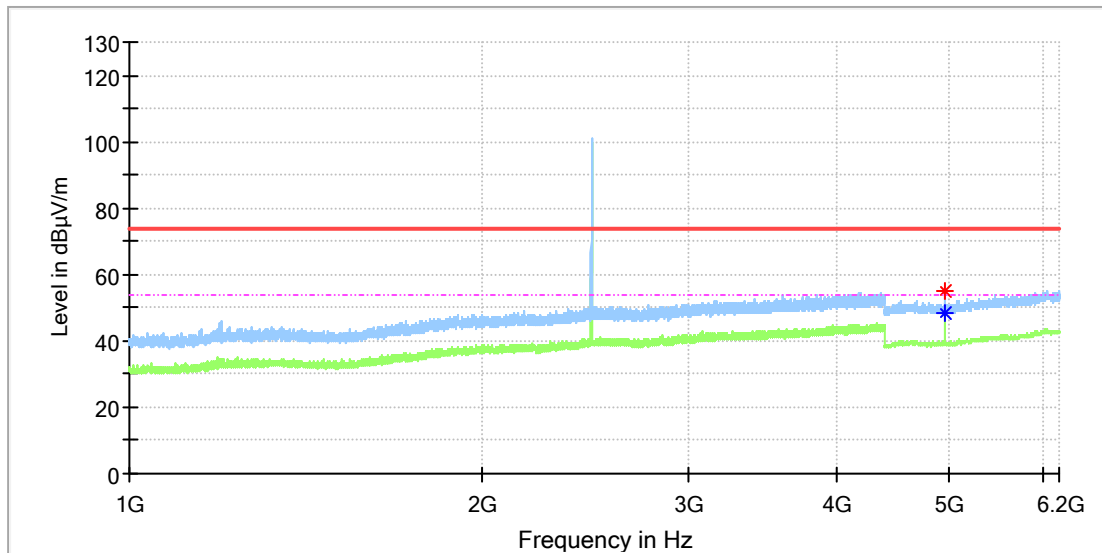


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4881.000000	55.49	---	74.00	18.51	100.0	V	177.0	11.8
4881.500000	---	48.41	54.00	5.59	100.0	V	177.0	11.8

EUT Information

EUT Name:	2.4GHz Digital Wireless Stereo Headphone
Model:	NS-HAWHP2
Test Mode:	High Channel
Order No/Sample No:	168343239/A003163351-002
Test Voltage::	AC 120V, 60Hz
Remark:	Temp 24 Humi:50%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

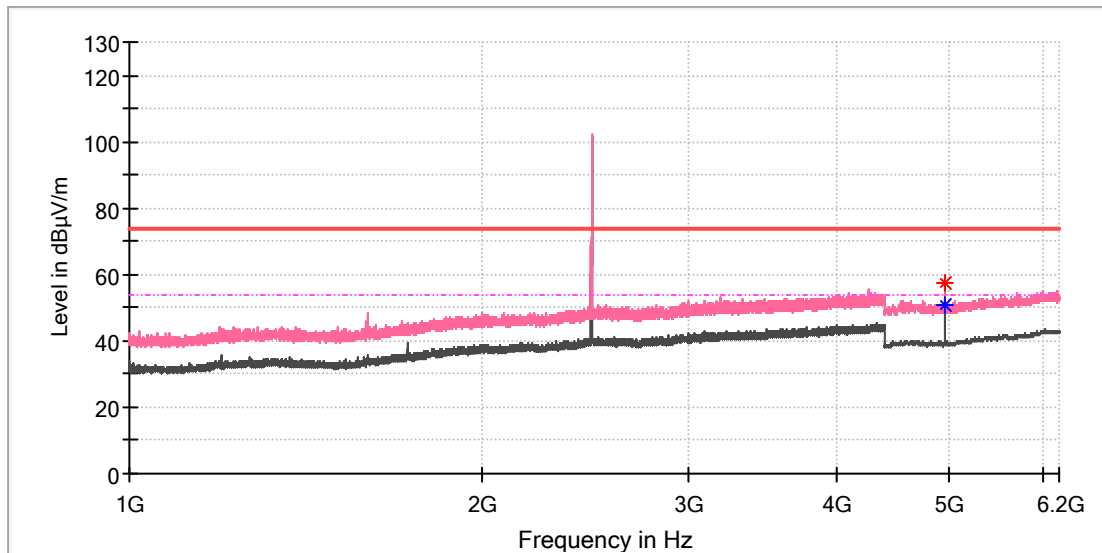


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4955.500000	---	48.21	54.00	5.79	100.0	H	263.0	11.8
4957.000000	55.20	---	74.00	18.80	100.0	H	263.0	11.8

EUT Information

EUT Name: 2.4GHz Digital Wireless Stereo Headphone
 Model: NS-HAWHP2
 Test Mode: High Channel
 Order No/Sample No: 168343239/A003163351-002
 Test Voltage:: AC 120V, 60Hz
 Remark: Temp 24 Humi:50%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

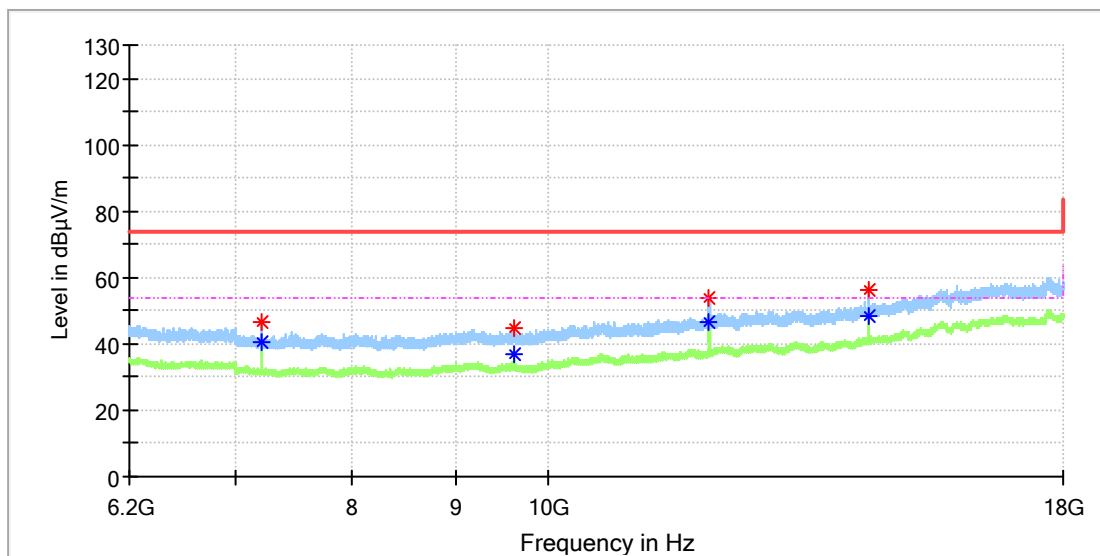


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4954.500000	57.68	---	74.00	16.32	100.0	V	55.0	11.8
4955.000000	---	50.50	54.00	3.50	100.0	V	55.0	11.8

EUT Information

EUT Name:	2.4GHz Digital Wireless Stereo Headphone
Model:	NS-HAWHP2
Test Mode:	Low Channel
Order No/Sample No:	168343239/A003163351-002
Test Voltage::	AC 120V, 60Hz
Remark:	Temp 24 Humi:50%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

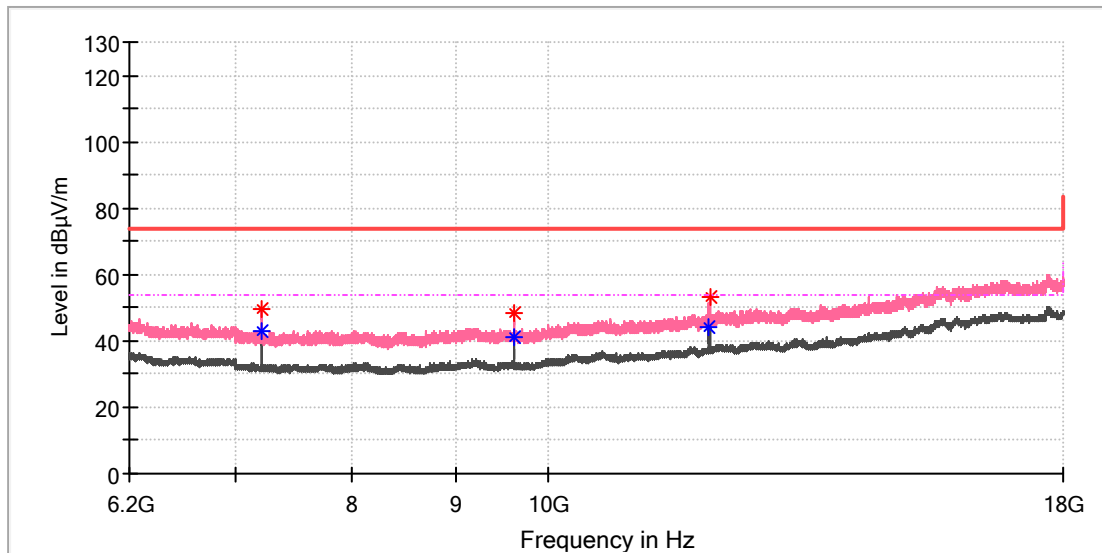


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7210.375000	---	40.42	54.00	13.58	100.0	H	233.0	8.7
7213.325000	46.84	---	74.00	27.16	100.0	H	233.0	8.7
9617.083333	44.63	---	74.00	29.37	100.0	H	97.0	10.4
9617.083333	---	37.14	54.00	16.86	100.0	H	97.0	10.4
12017.400000	53.80	---	74.00	20.20	100.0	H	70.0	14.0
12017.400000	---	46.58	54.00	7.42	100.0	H	70.0	14.0
14420.666667	56.33	---	74.00	17.67	100.0	H	57.0	16.9
14420.666667	---	48.48	54.00	5.52	100.0	H	57.0	16.9

EUT Information

EUT Name: 2.4GHz Digital Wireless Stereo Headphone
 Model: NS-HAWHP2
 Test Mode: Low Channel
 Order No/Sample No: 168343239/A003163351-002
 Test Voltage:: AC 120V, 60Hz
 Remark: Temp 24 Humi:50%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

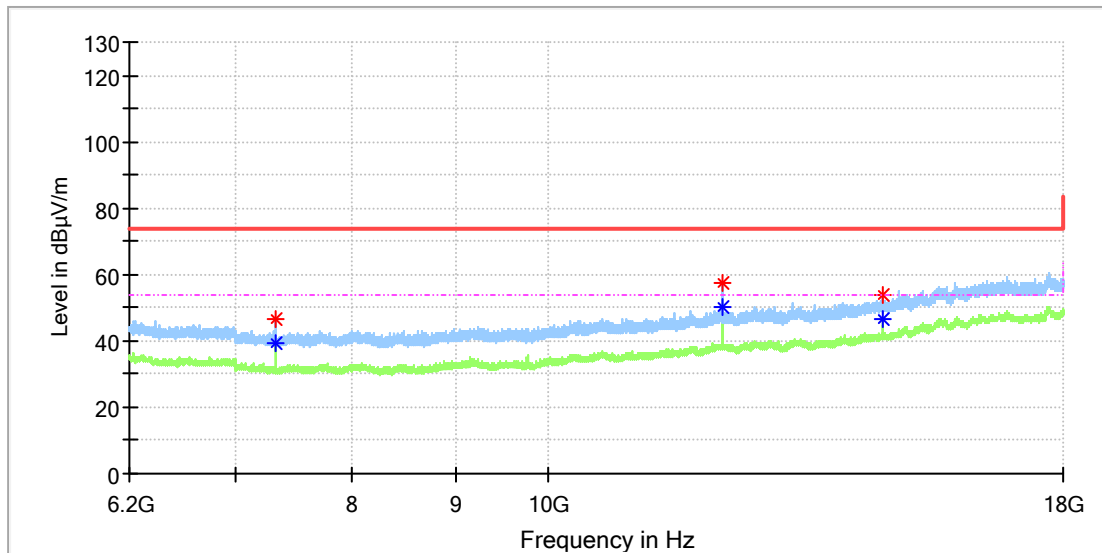


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7210.375000	49.36	---	74.00	24.64	100.0	V	214.0	8.7
7210.375000	---	43.01	54.00	10.99	100.0	V	214.0	8.7
9613.641667	48.52	---	74.00	25.48	100.0	V	185.0	10.4
9613.641667	---	41.00	54.00	13.00	100.0	V	185.0	10.4
12017.891667	---	44.15	54.00	9.85	100.0	V	311.0	14.0
12022.316667	53.05	---	74.00	20.95	100.0	V	311.0	14.0

EUT Information

EUT Name: 2.4GHz Digital Wireless Stereo Headphone
 Model: NS-HAWHP2
 Test Mode: Middle Channel
 Order No/Sample No: 168343239/A003163351-002
 Test Voltage:: AC 120V, 60Hz
 Remark: Temp 24 Humi:50%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

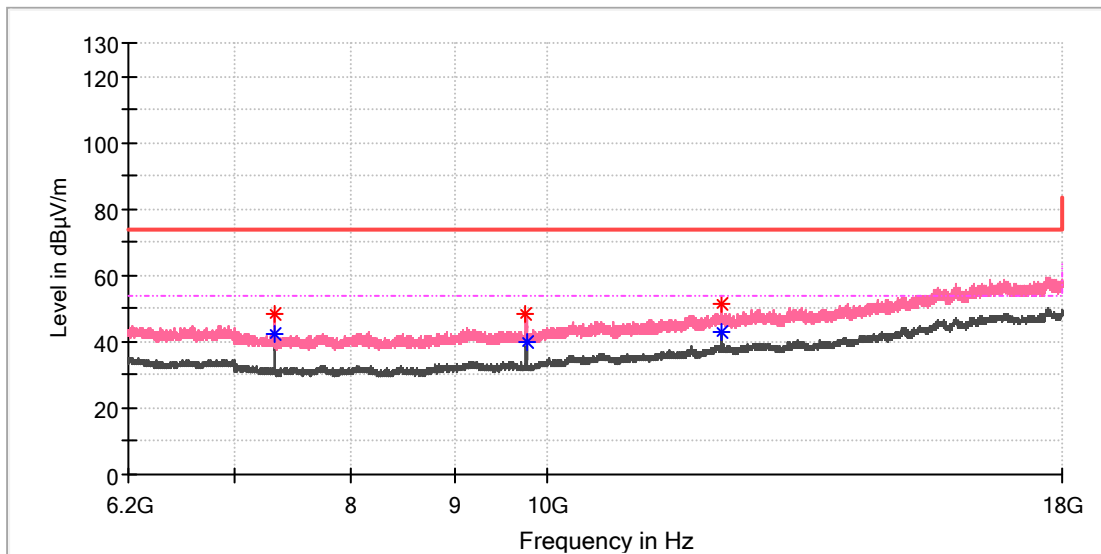


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7321.491667	46.82	---	74.00	27.18	100.0	H	256.0	8.2
7321.491667	---	39.50	54.00	14.50	100.0	H	256.0	8.2
12202.266667	57.63	---	74.00	16.37	100.0	H	53.0	14.7
12207.183333	---	50.12	54.00	3.88	100.0	H	53.0	14.7
14642.408333	53.72	---	74.00	20.28	100.0	H	97.0	17.1
14642.900000	---	46.48	54.00	7.52	100.0	H	68.0	17.1

EUT Information

EUT Name: 2.4GHz Digital Wireless Stereo Headphone
 Model: NS-HAWHP2
 Test Mode: Middle Channel
 Order No/Sample No: 168343239/A003163351-002
 Test Voltage:: AC 120V, 60Hz
 Remark: Temp 24 Humi:50%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

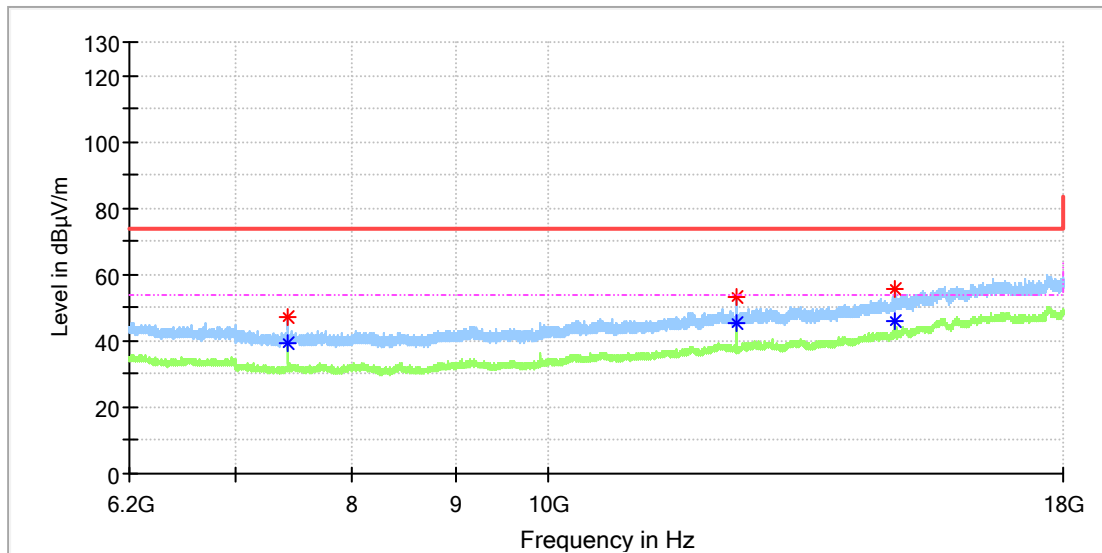


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7321.000000	48.10	---	74.00	25.90	100.0	V	216.0	8.2
7321.491667	---	42.27	54.00	11.73	100.0	V	216.0	8.2
9761.633333	48.40	---	74.00	25.60	100.0	V	64.0	10.4
9765.566667	---	40.10	54.00	13.90	100.0	V	64.0	10.4
12202.266667	---	42.87	54.00	11.13	100.0	V	319.0	14.7
12206.691667	51.28	---	74.00	22.72	100.0	V	229.0	14.7

EUT Information

EUT Name: 2.4GHz Digital Wireless Stereo Headphone
 Model: NS-HAWHP2
 Test Mode: High Channel
 Order No/Sample No: 168343239/A003163351-002
 Test Voltage:: AC 120V, 60Hz
 Remark: Temp 24 Humi:50%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

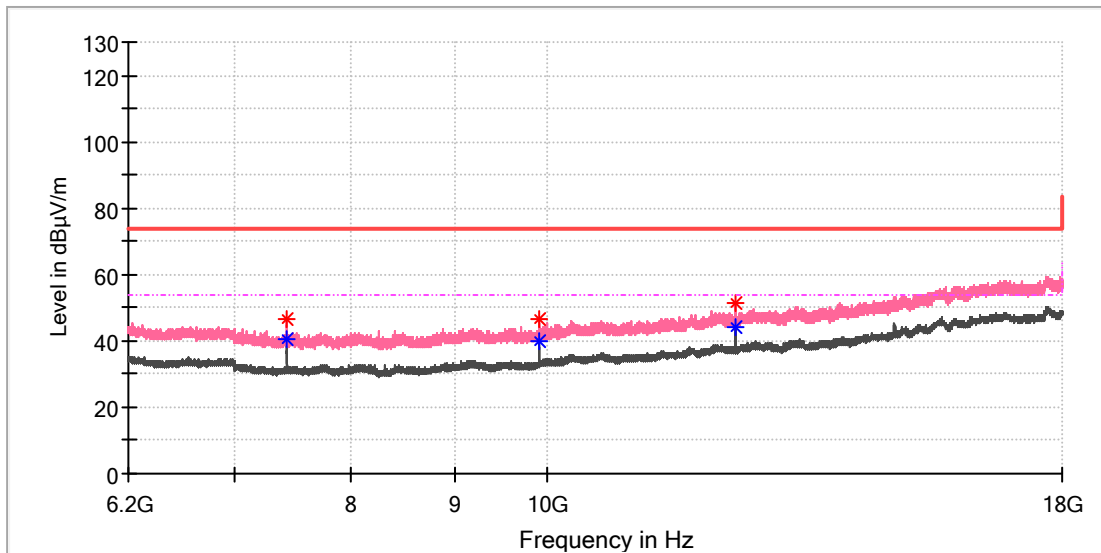


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7434.575000	---	39.07	54.00	14.93	100.0	H	110.0	8.4
7435.066667	47.18	---	74.00	26.82	100.0	H	235.0	8.4
12387.625000	53.16	---	74.00	20.84	100.0	H	337.0	14.7
12392.050000	---	45.07	54.00	8.93	100.0	H	337.0	14.7
14865.133333	---	46.06	54.00	7.94	100.0	H	54.0	17.4
14870.541667	55.50	---	74.00	18.50	100.0	H	54.0	17.4

EUT Information

EUT Name: 2.4GHz Digital Wireless Stereo Headphone
 Model: NS-HAWHP2
 Test Mode: High Channel
 Order No/Sample No: 168343239/A003163351-002
 Test Voltage:: AC 120V, 60Hz
 Remark: Temp 24 Humi:50%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin



Critical Freqs

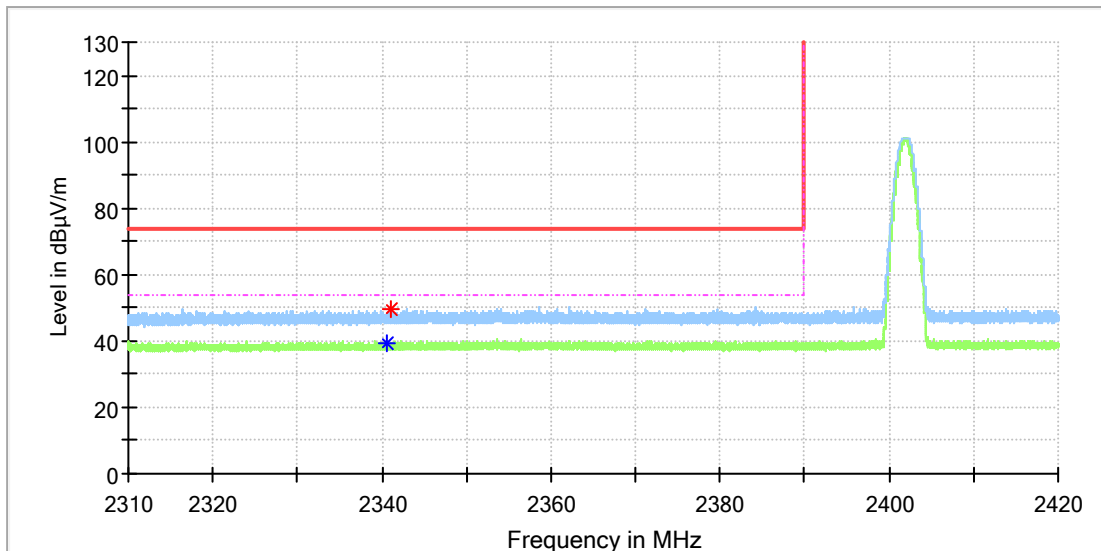
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7435.066667	46.35	---	74.00	27.65	100.0	V	66.0	8.4
7435.066667	---	40.76	54.00	13.24	100.0	V	66.0	8.4
9909.625000	46.52	---	74.00	27.48	100.0	V	203.0	10.8
9909.625000	---	39.89	54.00	14.11	100.0	V	203.0	10.8
12387.133333	51.48	---	74.00	22.52	100.0	V	217.0	14.7
12387.625000	---	44.42	54.00	9.58	100.0	V	217.0	14.7

Appendix B.5: Test Results of Radiated Emissions in Restricted Bands

Data Rate, 1Mbps

EUT Information

EUT Name: 2.4GHz Digital Wireless Stereo Headphone
 Model: NS-HAWHP2
 Test Mode: Low Channel
 Order No/Sample No: 168343239/A003163351-002
 Test Voltage:: AC 120V, 60Hz
 Remark: Temp 24 Humi:50%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

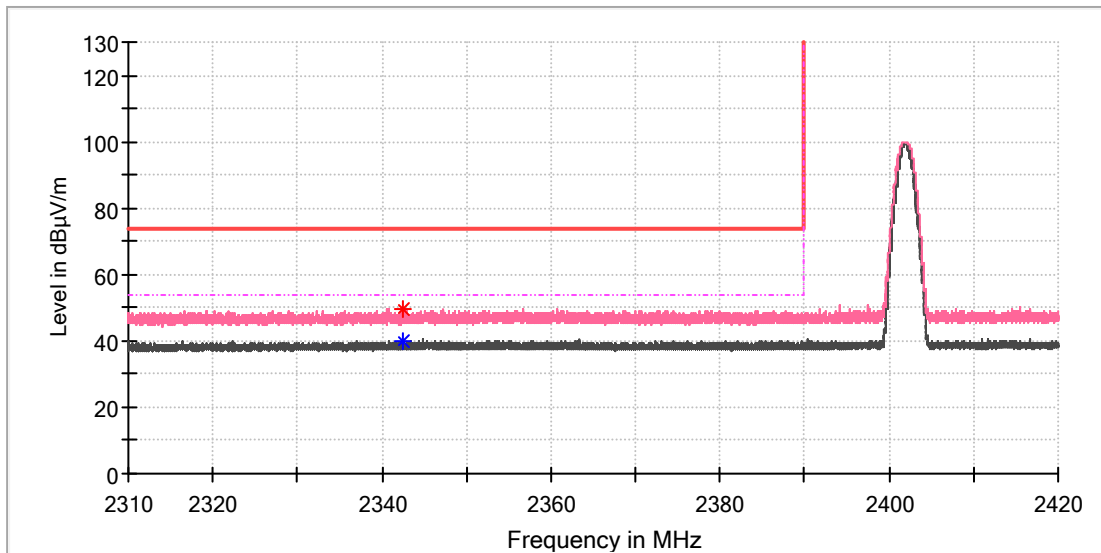


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2340.492000	---	39.54	54.00	14.46	100.0	H	317.0	6.8
2340.943000	49.32	---	74.00	24.68	100.0	H	327.0	6.8

EUT Information

EUT Name:	2.4GHz Digital Wireless Stereo Headphone
Model:	NS-HAWHP2
Test Mode:	Low Channel
Order No/Sample No:	168343239/A003163351-002
Test Voltage::	AC 120V, 60Hz
Remark:	Temp 24 Humi:50%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

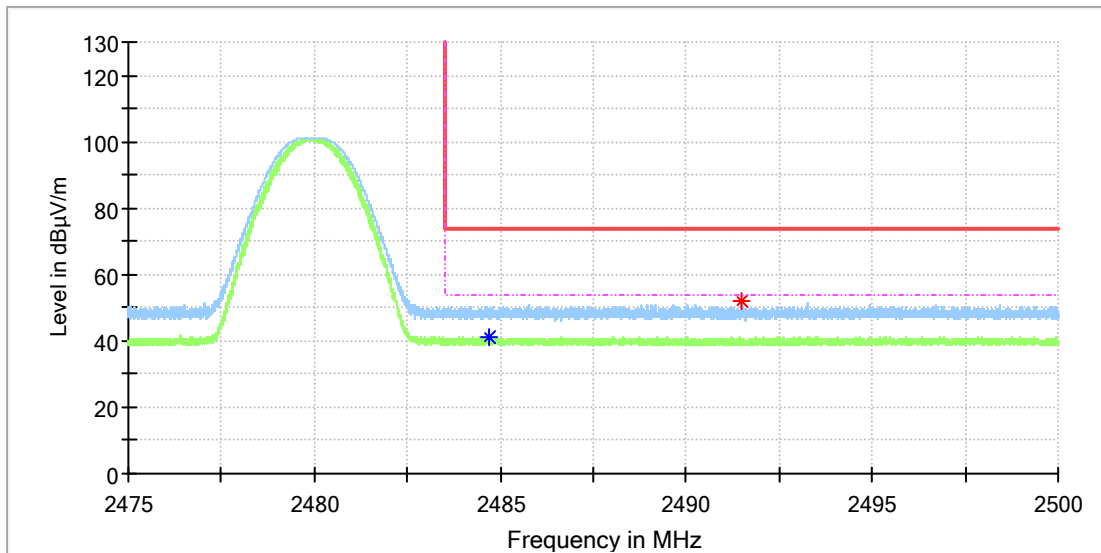


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2342.362000	49.55	---	74.00	24.45	100.0	V	60.0	6.8
2342.472000	---	39.68	54.00	14.32	100.0	V	175.0	6.8

EUT Information

EUT Name:	2.4GHz Digital Wireless Stereo Headphone
Model:	NS-HAWHP2
Test Mode:	High Channel
Order No/Sample No:	168343239/A003163351-002
Test Voltage::	AC 120V, 60Hz
Remark:	Temp 24 Humi:50%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

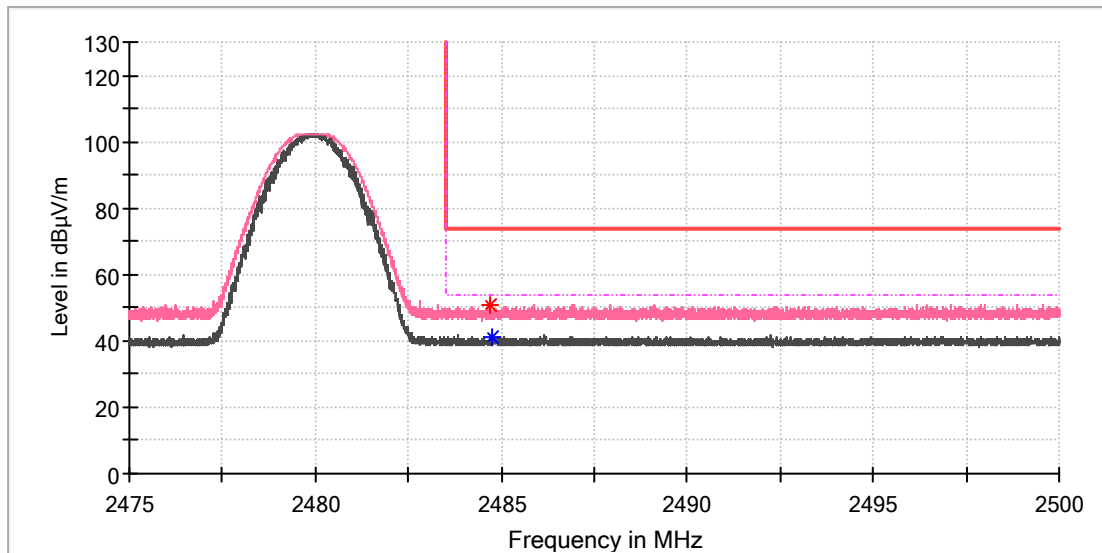


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2484.678750	---	41.10	54.00	12.90	100.0	H	247.0	7.4
2491.489750	51.95	---	74.00	22.05	100.0	H	335.0	7.4

EUT Information

EUT Name:	2.4GHz Digital Wireless Stereo Headphone
Model:	NS-HAWHP2
Test Mode:	High Channel
Order No/Sample No:	168343239/A003163351-002
Test Voltage::	AC 120V, 60Hz
Remark:	Temp 24 Humi:50%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



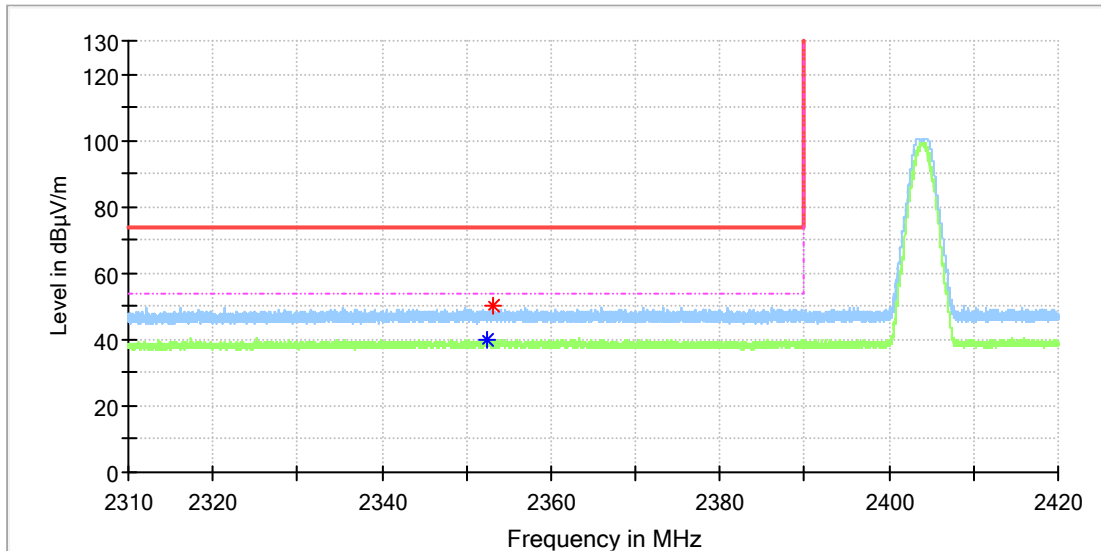
Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2484.677000	50.86	---	74.00	23.14	100.0	V	334.0	7.4
2484.748750	---	41.14	54.00	12.86	100.0	V	88.0	7.4

Data Rate, 2Mbps

EUT Information

EUT Name:	2.4GHz Digital Wireless Stereo Headphone
Model:	NS-HAWHP2
Test Mode:	Low Channel
Order No/Sample No:	168343239/A003163351-002
Test Voltage::	AC 120V, 60Hz
Remark:	Temp 24 Humi:50%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

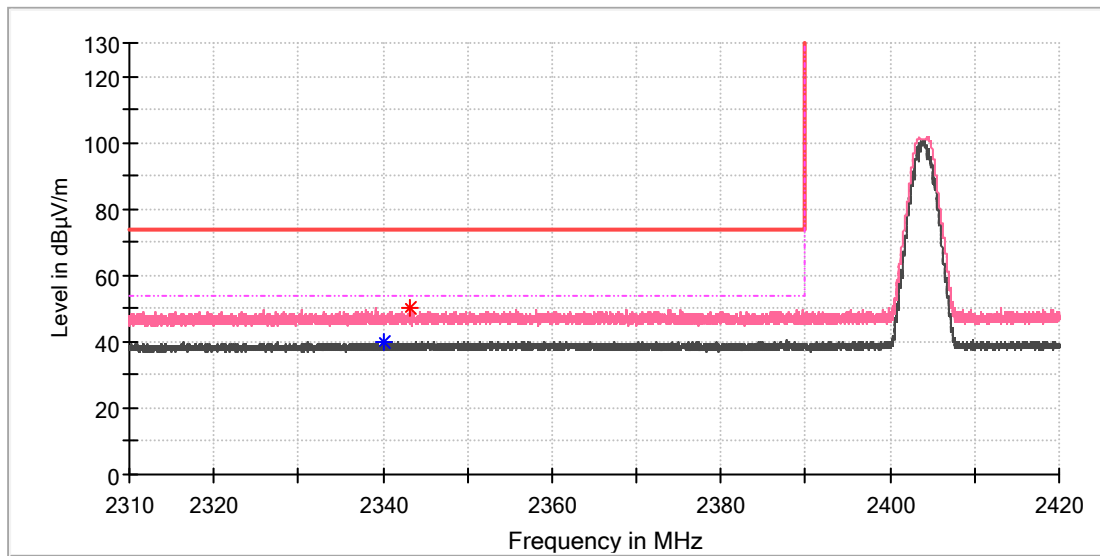


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2352.537000	---	39.89	54.00	14.11	100.0	H	0.0	6.9
2353.048500	49.91	---	74.00	24.09	100.0	H	91.0	6.9

EUT Information

EUT Name: 2.4GHz Digital Wireless Stereo Headphone
 Model: NS-HAWHP2
 Test Mode: Low Channel
 Order No/Sample No: 168343239/A003163351-002
 Test Voltage:: AC 120V, 60Hz
 Remark: Temp 24 Humi:50%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

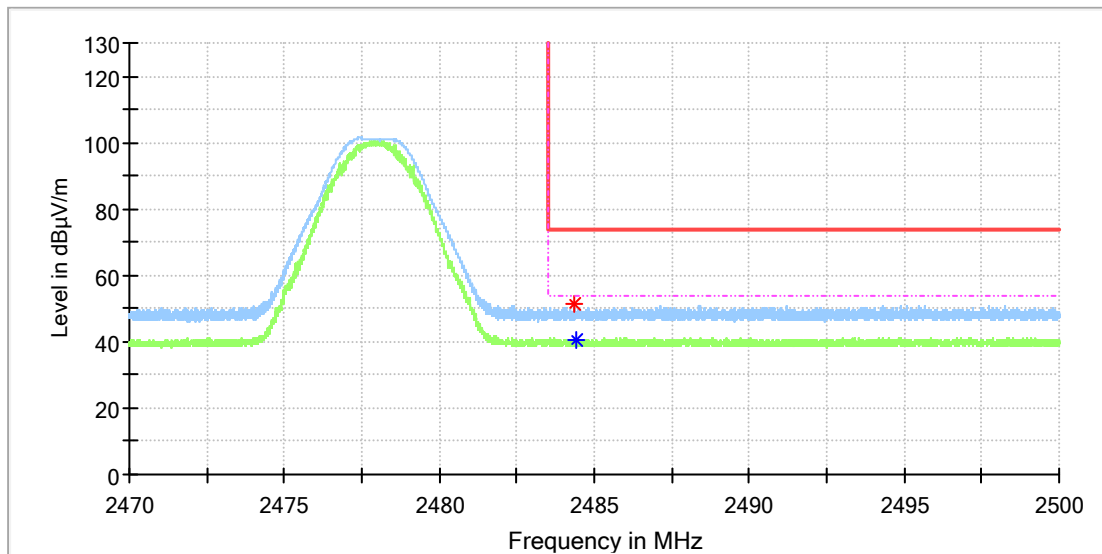


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2340.140000	---	39.63	54.00	14.37	100.0	V	19.0	6.8
2343.088000	49.99	---	74.00	24.01	100.0	V	85.0	6.8

EUT Information

EUT Name:	2.4GHz Digital Wireless Stereo Headphone
Model:	NS-HAWHP2
Test Mode:	High Channel
Order No/Sample No:	168343239/A003163351-002
Test Voltage::	AC 120V, 60Hz
Remark:	Temp 24 Humi:50%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

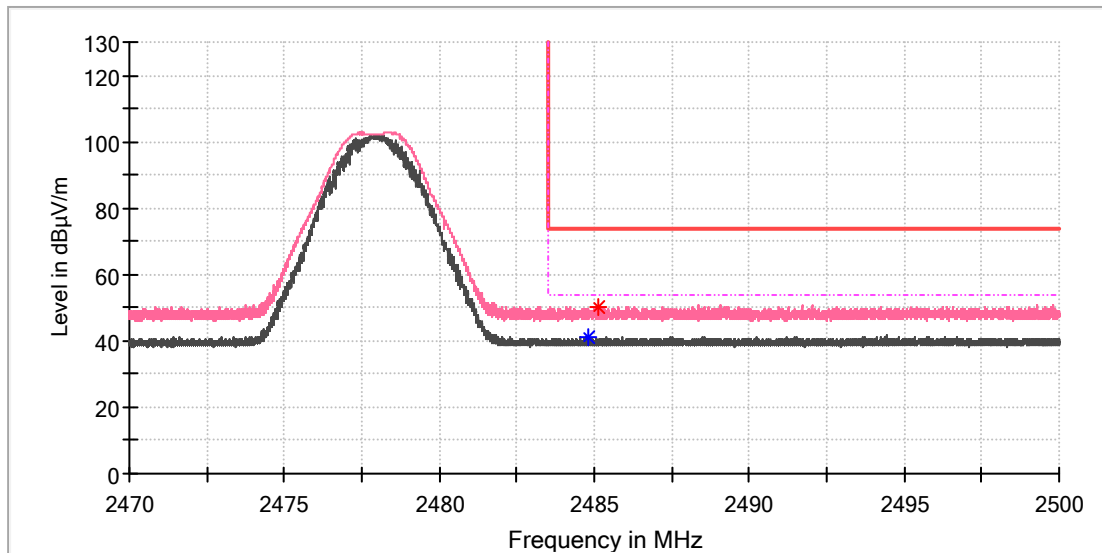


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2484.332250	51.34	---	74.00	22.66	100.0	H	88.0	7.4
2484.411000	---	40.31	54.00	13.69	100.0	H	272.0	7.4

EUT Information

EUT Name:	2.4GHz Digital Wireless Stereo Headphone
Model:	NS-HAWHP2
Test Mode:	High Channel
Order No/Sample No:	168343239/A003163351-002
Test Voltage::	AC 120V, 60Hz
Remark:	Temp 24 Humi:50%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



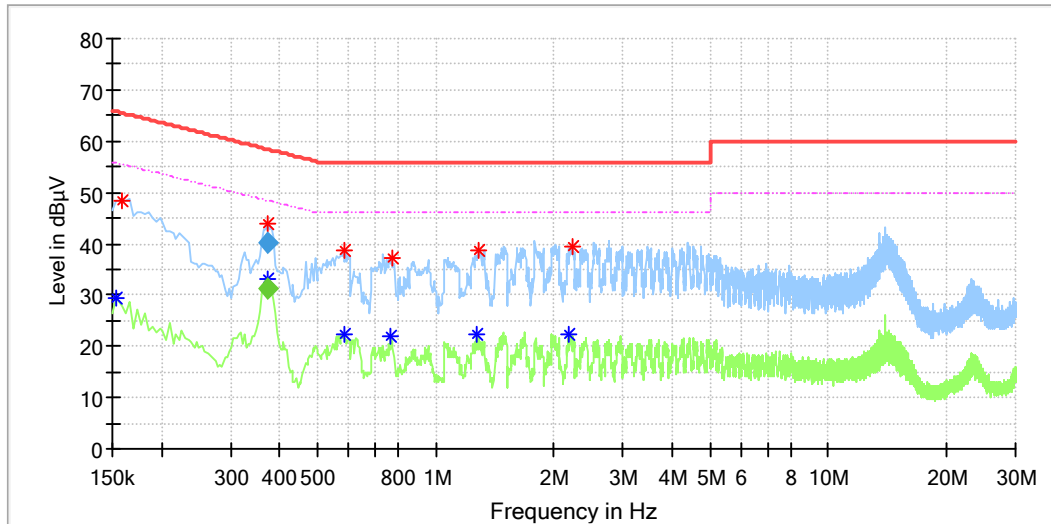
Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2484.801250	---	41.09	54.00	12.91	100.0	V	45.0	7.4
2485.123250	50.05	---	74.00	23.95	100.0	V	247.0	7.4

Appendix B.6: Test Results of Conducted Emissions on AC Mains

EUT Information

EUT Name: 2.4GHz Digital Wireless Stereo Headphone
 Model: NS-HAWHP2
 Test mode: Wireless
 Test Voltage: AC 120V/60Hz
 Test By: Jianhua Lu
 Review By: Gary Chen
 Remark: SR2



Critical Freqs

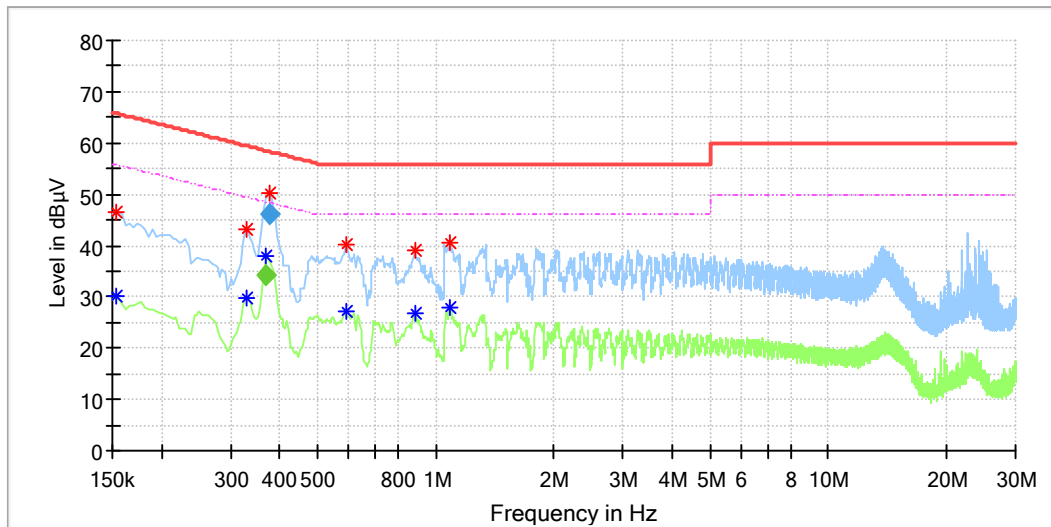
Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.154000	---	29.54	55.78	26.24	L1	9.9
0.158000	48.38	---	65.57	17.19	L1	9.9
0.373500	44.02	---	58.41	14.39	L1	9.9
0.373500	---	33.17	48.50	15.33	L1	9.9
0.582000	---	22.41	46.00	23.59	L1	10.0
0.582000	38.61	---	56.00	17.39	L1	10.0
0.770000	---	22.10	46.00	23.90	L1	10.0
0.774000	37.27	---	56.00	18.73	L1	10.0
1.270000	---	22.23	46.00	23.77	L1	10.1
1.286000	38.79	---	56.00	17.21	L1	10.1
2.190000	---	22.18	46.00	23.82	L1	10.2
2.226000	39.52	---	56.00	16.48	L1	10.2

Final Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.373500	---	31.30	48.42	17.12	1000.0	9.000	L1	9.9
0.373500	40.01	---	58.42	18.41	1000.0	9.000	L1	9.9

EUT Information

EUT Name: 2.4GHz Digital Wireless Stereo Headphone
 Model: NS-HAWHP2
 Test mode: Wireless
 Test Voltage: AC 120V/60Hz
 Test By: Jianhua Lu
 Review By: Gary Chen
 Remark: SR2



Critical Freqs

Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.154000	---	30.23	55.78	25.55	N	9.8
0.154000	46.34	---	65.78	19.44	N	9.8
0.330000	---	29.80	49.45	19.65	N	9.8
0.330000	43.15	---	59.45	16.30	N	9.8
0.369500	---	37.92	48.41	10.49	N	9.8
0.377500	50.18	---	58.32	8.14	N	9.8
0.590000	40.04	---	56.00	15.96	N	9.8
0.594000	---	27.21	46.00	18.79	N	9.8
0.886000	39.03	---	56.00	16.97	N	9.8
0.890000	---	26.76	46.00	19.24	N	9.8
1.082000	---	27.86	46.00	18.14	N	9.8
1.090000	40.50	---	56.00	15.50	N	9.8

Final Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.369500	---	34.06	48.51	14.45	1000.0	9.000	N	9.8
0.377500	46.19	---	58.33	12.15	1000.0	9.000	N	9.8