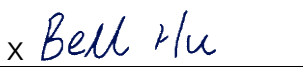


Prüfbericht-Nr.: Test report no.:	CN25NHLG 001	Auftrags-Nr.: Order no.:	168548303	Seite 1 von 19 Page 1 of 19
Kunden-Referenz-Nr.: Client reference no.:	N/A	Auftragsdatum: Order date:	2025-04-14	
Auftraggeber: Client:	Zhong Shan City Richsound Electronic Industrial Ltd. No.16, East Shagang Road, Gangkou, Zhongshan, Guangdong, China.			
Prüfgegenstand: Test item:	5.1.2-Channel Soundbar with Subwoofer and Satellite Speakers			
Bezeichnung / Typ-Nr.: Identification / Type no.:	NS-SB512, NS-SB512-C, TB643DW7S (Trademark: INSIGNIA, RSR)			
Auftrags-Inhalt: Order content:	Test Report			
Prüfgrundlage: Test specification:	CFR Title 47 FCC Part 15: Subpart E Section 15.249			
Wareneingangsdatum: Date of sample receipt:	2025-04-21	Please refer to Photo Document		
Prüfmuster-Nr.: Test sample no.:	A003970302-001~003			
Prüfzeitraum: Testing period:	2025-04-29 - 2025-05-22			
Ort der Prüfung: Place of testing:	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüflaboratorium: Testing laboratory:	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: Test result*:	Pass			
geprüft von: tested by:			genehmigt von: authorized by:	
Datum: Date:	2025-07-07	Ausstellungsdatum: Issue date:		2025-07-07
Stellung / Position:	Sachverständige(r)/Expert	Stellung / Position:		Sachverständige(r)/Expert
Sonstiges / Other:	FCC ID: Z8M-NSSB512SATL			
Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery:	Prüfmuster vollständig und unbeschädigt Test item complete and undamaged			
* Legende:	P(ass) = entspricht o.g. Prüfgrundlage(n)	F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
* Legend:	P(ass) = passed a.m. test specification(s)	F(ail) = failed a.m. test specification(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 above mentioned 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>				

Prüfbericht-Nr.: CN25NHLG 001
Test report no.:

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Anmerkungen
Remarks

1	Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben. Detaillierte Informationen bezüglich Prüfbedingungen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden. <i>The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system. Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.</i>
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3	Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben. Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt. <i>Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report.</i> <i>Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.</i>
4	Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnissen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2023, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezüglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019. <i>The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2023, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.</i>

Test Summary

5.1.1 ANTENNA REQUIREMENT

RESULT: Pass

5.1.2 FIELD STRENGTH OF FUNDAMENTAL AND HARMONICS

RESULT: Pass

5.1.3 20dB BANDWIDTH

RESULT: Pass

5.1.4 BAND EDGE

RESULT: Pass

5.1.5 CONDUCTED EMISSION ON AC MAINS

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: Test Results of 5.8GHz

Appendix B: Photographs of the Test Set-up

2 Test Sites

2.1 Test Facilities

TÜV Rheinland (Shenzhen) Co., Ltd.

2-3F, 101 & 102, No.2, Nuclear Power Industrial Park, Fuming Community, Fucheng Street, Longhua District, Shenzhen 518000, China

A2LA Certificate Number: 5162.01

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

Radio Spectrum Testing (SRD-Tonscend)					
Equipment	Manufacturer	Model	Serial No.	Cal. Date	Cal. until
EXA Signal Analyzer, Multi-touch	Keysight	N9010B	MY60241175	2024-09-26	2025-09-25
MXG X-Series RF Vector Signal Generator	Keysight	N5182B	MY61250137	2024-09-26	2025-09-25
EXG X-Series Microwave Analog Signal Generator	Keysight	N5173B	MY61250141	2024-09-26	2025-09-25
DC power supply	Keysight	E3642A	MY61276100	2024-09-26	2025-09-25
Power Control Unit	Tonscend	JS0806-4ADC	N/A	2024-09-26	2025-09-25
Automation Control Unit	Tonscend	JS0806-2	21C8060396	2024-09-26	2025-09-25
Test Software	Tonscend	JS1120-3	N/A	N/A	N/A
Control PC	Lenovo	TianYi510S-071MB	YLX23JMF	N/A	N/A
Shielding Room	Albatross	SR1	APC17151-SR1	2024-09-14	2027-09-13
Unwanted Emission Testing (TS9975)					
Equipment	Manufacturer	Model	Serial No.	Cal. Date	Cal. until
EMI Test Receiver	R&S	ESR 7	102021	2024-09-29	2025-09-28
Signal Analyzer	R&S	FSV 40	101439	2024-09-29	2025-09-28
System Controller Interface	R&S	SCI-100	S10010038	N/A	N/A
Filterbank	R&S	Wlan	100759	2024-09-29	2025-09-28
OSP	R&S	OSP 120	102040	N/A	N/A
Pre-amplifier	R&S	SCU08F1	08320031	2024-09-29	2025-09-28
Amplifier	R&S	SCU-18F	180070	2024-09-29	2025-09-28
Amplifier	R&S	SCU40A	100475	2024-09-29	2025-09-28
Trilog Broadband Antenna (30 MHz - 7 GHz)	Schwarzbeck	VULB 9162	193	2024-09-28	2025-09-27

Double-Ridged Antenna (1-18 GHz)	ETS-LINDGREN	3117	00218717	2024-09-28	2025-09-27
Wideband Ridged Horn Antenna (18-40 GHz)	Steatite	QMS-00880	19067	2024-09-28	2025-09-27
Active Loop Antenna	Schwarzbeck	FMZB 1513	302	2024-09-28	2025-09-27
Test software	R&S	EMC32 (V10.60.10)	N/A	N/A	N/A
Control PC	Dell	OptiPlex 7050	36NV9P2	N/A	N/A
3m Semi-Anechoic Chamber	Albatross	SAC-3m	APC17151-SAC	2024-09-14	2027-09-13

Conducted Emission				
Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
EMI Test Receiver	R&S	ESR3	102680	2026-02-09
Artificial Mains Network	R&S	ENV216	102333	2025-07-22
Shield Cable(9k-30MHz)	N/A	N/A	N/A	2025-12-20
EMC32 Test Software	R&S	EMC32(Ver.10.50.00)	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.

Table 2: Measurement Uncertainty

Parameter	Uncertainty (k=2)
RF output power, conducted	± 0.99 dB
Occupied Channel Bandwidth	± 2.08 %
RF power density, conducted	± 0.99 dB
Unwanted Emissions, conducted	± 0.89 dB
All emissions, radiated	± 4.17 dB
Conducted Emission, (9kHz to 150kHz)/(150kHz to 30MHz)	± 3.70 dB / ± 3.30 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) 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 2-3F, 101 & 102, No.2, Nuclear Power Industrial Park, Fuming Community, Fucheng Street, Longhua District, Shenzhen 518000, 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 Satellite Speaker which supports 5.8GHz wireless technology.
All the models are the same except for trademark difference.
For details refer to the User Manual, Technical Description and Circuit Diagram.

3.2 Ratings and System Details

Table 3: Technical Specification of EUT

General Information of EUT	Value
Kind of Equipment:	5.1.2-Channel Soundbar with Subwoofer and Satellite Speakers
Type Designation:	NS-SB512, NS-SB512-C, TB643DW7S
FCC ID:	Z8M-NSSB512SATL
Operating Voltage:	100-240V~50/60Hz, 30W
Testing Voltage:	AC 120V, 60Hz
Technical Specification of 5.8GHz	
Operating Frequency:	5729-5849MHz
Channel Number:	61 channels
Type of Modulation:	GFSK
Channel Separation:	2MHz
Channel Separation:	1MHz
Antenna Type:	Integral Antenna
Antenna Number:	1
Antenna Gain:	4.28 dBi (Provided by the Client)

Note: The correctness of all data provided by customer in the test report is ensured and responsible of the customer. Any misjudgment of the test results caused by the use of incorrect data provided by customer shall be borne by the customer.

Table 4: RF Channel and Frequency of 5.8GHz

RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
0	5729	16	5761	32	5793	48	5825
1	5731	17	5763	33	5795	49	5827
2	5733	18	5765	34	5797	50	5829
3	5735	19	5767	35	5799	51	5831
4	5737	20	5769	36	5801	52	5833
5	5739	21	5771	37	5803	53	5835
6	5741	22	5773	38	5805	54	5837
7	5743	23	5775	39	5807	55	5839
8	5745	24	5777	40	5809	56	5841

9	5747	25	5779	41	5811	57	5843
10	5749	26	5781	42	5813	58	5845
11	5751	27	5783	43	5815	59	5847
12	5753	28	5785	44	5817	60	5849
13	5755	29	5787	45	5819		
14	5757	30	5789	46	5821		
15	5759	31	5791	47	5823		

3.3 Independent Operation Modes

The basic operation modes are:

- A. On, 5.8G wireless transmitting mode
 - 1. Low channel
 - 2. Middle channel
 - 3. High channel
- B. On, Normal working
- C. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- Application Form
- User Manual
- Operation Description
- ID Label and Location Info

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.

According to clause 3.1, all tests were performed on model NS-SB512 in this report.

4.3 Special Accessories and Auxiliary Equipment

Table 5: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N
Laptop	Lenovo	T480	PF-16A6N8
Soundbar	INSIGNIA	NS-SB512	N/A
satellite speaker (Left)	INSIGNIA	NS-SB512	N/A
satellite speaker (Right)	INSIGNIA	NS-SB512	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 1GHz)

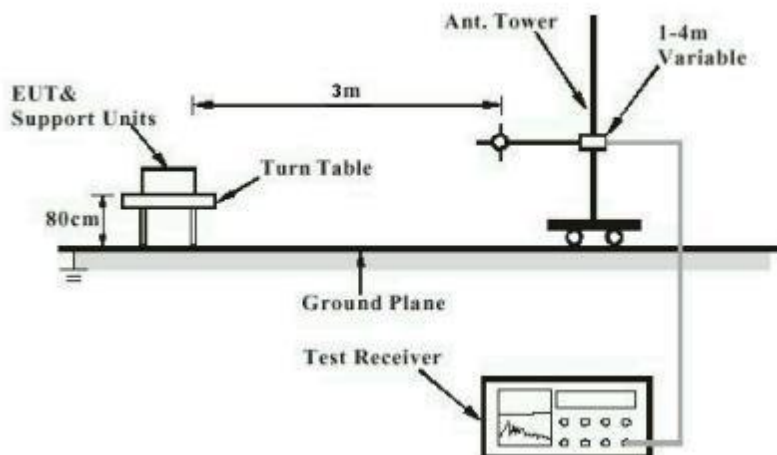


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

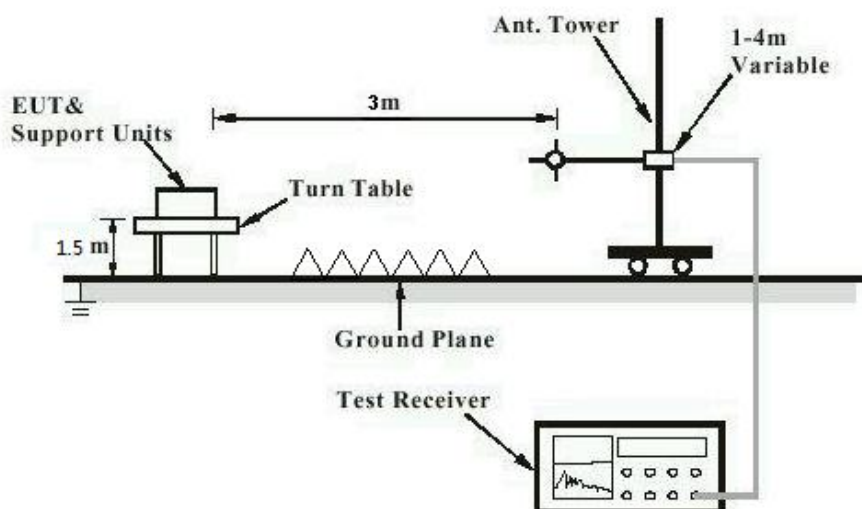


Diagram of Measurement Configuration for Mains Conduction Measurement

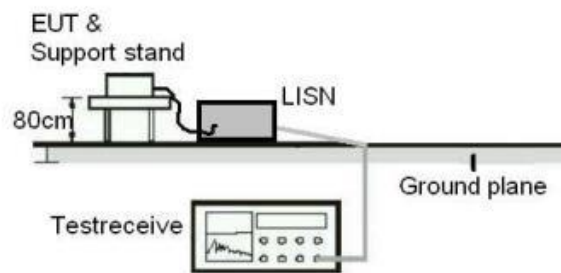
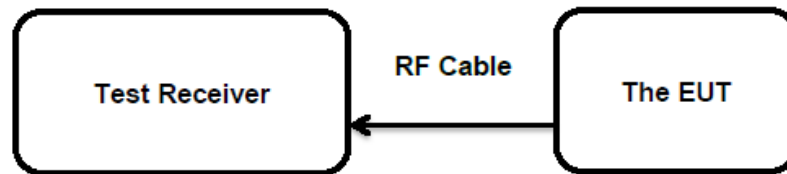


Diagram of Measurement Configuration for Conducted Transmitter Measurement



5 Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT:

Pass

Test Specification

Test standard : FCC Part 15.203

According to the manufacturer declared, the EUT have Integral antenna, permanent attachment and no consideration of replacement, refer to section 3.2 for details.

Therefore, the EUT is considered sufficient to comply with the provision.

Refer to EUT Photo for further details.

5.1.2 Field strength of fundamental and harmonics

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

Test standard	: FCC Part 15.249(a) (d) (e)
Basic standard	: ANSI C63.10: 2013
Limits	: FCC Part 15.249(a) (d) (e) & 15.209(a)
Kind of test site	: 3m Semi-anechoic Chamber

Test Setup

Date of testing	: 2025-05-06
Input voltage	: AC 120V, 60Hz
Operation mode	: A
Test channel	: Low / Middle / High
Ambient temperature	: 25 °C
Relative humidity	: 45 %
Atmospheric pressure	: 101 kPa

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

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5.1.3 20dB bandwidth

RESULT:

Pass

Test Specification

Test standard : FCC Part 15.215
Basic standard : ANSI C63.10: 2013
Limits : Within assigned band
Kind of test site : Shielded Room

Test Setup

Date of testing : 2025-05-06
Input voltage : AC 120V, 60Hz
Operation mode : A
Test channel : Low / Middle / High
Ambient temperature : 25 °C
Relative humidity : 45 %
Atmospheric pressure : 101 kPa

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5.1.4 Band Edge

RESULT:

Pass

Test Specification

Test standard	: FCC Part 15.249(a) (d) (e) & 15.209 & 15.205
Basic standard	: ANSI C63.10: 2013
Limits	: FCC Part 15.249(a) (d) (e) & 15.209 & 15.205
Kind of test site	: 3m Semi-anechoic Chamber

Test Setup

Date of testing	: 2025-05-06
Input voltage	: AC 120V, 60Hz
Operation mode	: A
Test channel	: Low / Middle / High
Ambient temperature	: Refer to test result
Relative humidity	: Refer to test result
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix A.

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5.1.5 Conducted Emission on AC Mains

RESULT:

Pass

Test Specification

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

Test Setup

Date of testing	: 2025-04-29 to 2025-05-08
Input voltage	: AC 120V, 60Hz
Operation mode	: B
Earthing	: Not connected
Ambient temperature	: Refer to test result
Relative humidity	: Refer to test result
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix A.

6 Photographs of the Test Set-Up

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

7 List of Tables

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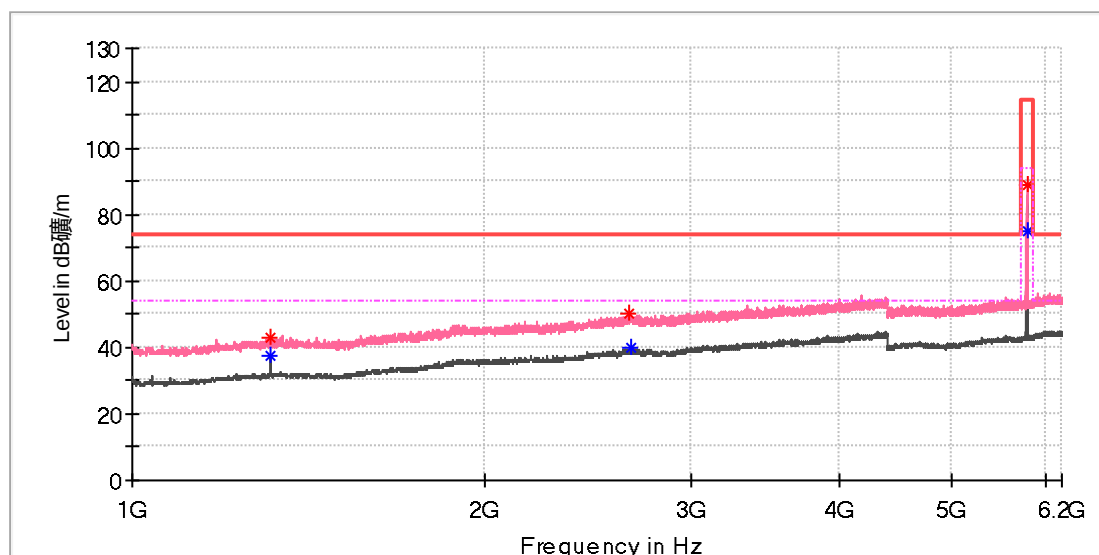
Appendix A: Test Results of 5.8GHz

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30MHz - 1GHz	4
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Test Report

EUT Information

EUT Name:	Satellite Speaker
Model:	NS-SB512
Test Mode:	5.8GHz_5789MHz
Order No/Sample No:	168548303/A003970302-003
Test Voltage::	120V/60Hz
Remark:	Temp 23 Humi:56%
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)
1312.500000	42.70	---	74.00	31.30	150.0	V	256.0	2.8
1312.500000	---	37.71	54.00	16.29	150.0	V	256.0	2.8
2650.500000	50.22	---	74.00	23.78	150.0	V	322.0	10.2
2657.500000	---	39.81	54.00	14.19	150.0	V	242.0	10.2
5788.000000	---	75.15	94.00	18.85	150.0	V	110.0	15.5
5788.500000	89.00	---	114.00	25.00	150.0	V	110.0	15.5

Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---	---		---	---

Appendix A.2: Test Results of Radiated Spurious Emissions

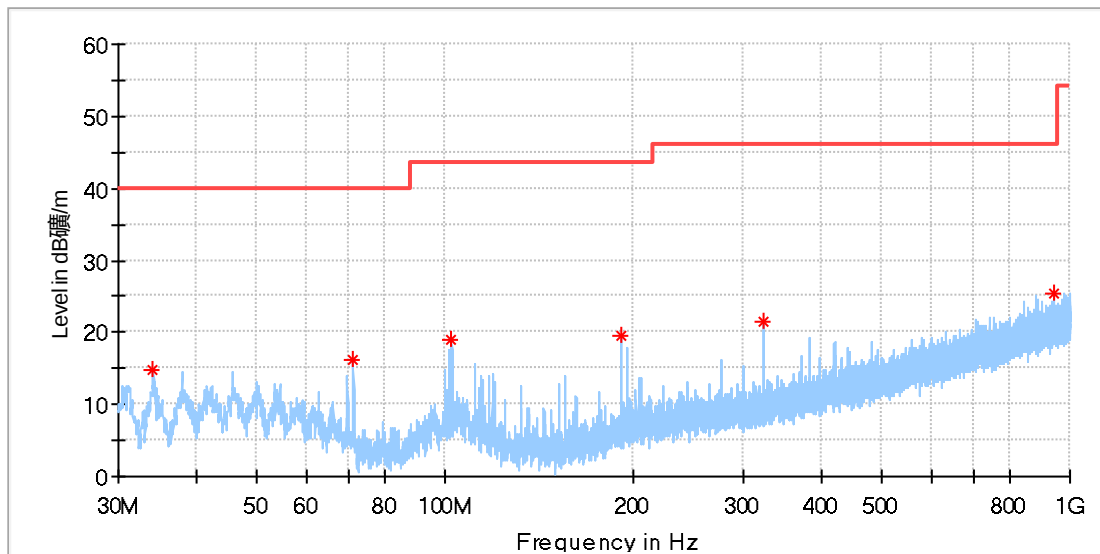
Note:

- 1) This testing was carried out on different modulations, but only the worst case was presented in this report.
- 2) The test was performed on Low/middle/high channels, here just worst case channel result is shown.
- 3) Testing was carried out within frequency range 9kHz to the tenth harmonics. The measurement results below 30MHz and 18GHz - 40GHz were greater than 20dB below the limit, so only the radiated spurious emissions from 30MHz to 18GHz were reported

30MHz - 1GHz

EUT Information

EUT Name:	Satellite Speaker
Model:	NS-SB512
Test Mode:	5.8GHz_5789MHz
Order No/Sample No:	168548303/A003970302-003
Test Voltage:	120V/60Hz
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical Freqs

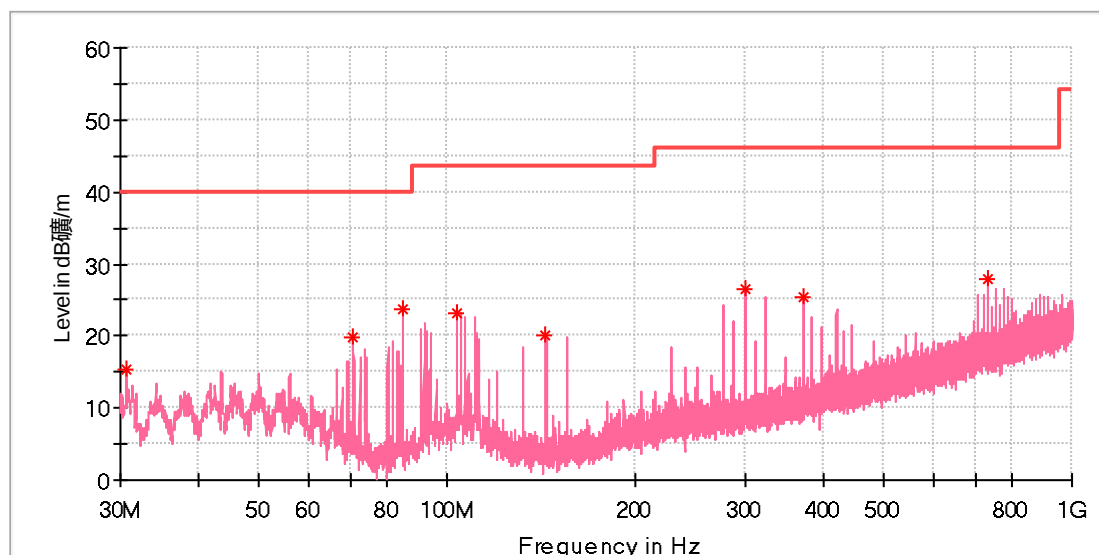
Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
34.103846	14.69	40.00	25.31	100.0	H	0.0	-22.3
71.336923	16.23	40.00	23.77	100.0	H	217.0	-22.4
102.488846	18.99	43.50	24.51	100.0	H	82.0	-19.0
191.542308	19.49	43.50	24.01	100.0	H	338.0	-19.5
324.021923	21.55	46.00	24.45	100.0	H	128.0	-15.5
941.315000	25.53	46.00	20.47	100.0	H	52.0	-4.4

Final Result

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---

EUT Information

EUT Name: Satellite Speaker
Model: NS-SB512
Test Mode: 5.8GHz_5789MHz
Order No/Sample No: 168548303/A003970302-003
Test Voltage: 120V/60Hz
Remark: Temp 23 Humi:56%
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)
30.634231	15.24	40.00	24.76	100.0	V	356.0	-22.9
70.740000	19.89	40.00	20.11	100.0	V	195.0	-22.2
84.916923	23.64	40.00	16.36	100.0	V	169.0	-22.5
103.682692	23.15	43.50	20.35	100.0	V	144.0	-19.0
144.012308	20.15	43.50	23.35	100.0	V	349.0	-22.4
300.033077	26.46	46.00	19.54	100.0	V	42.0	-16.3
372.036923	25.45	46.00	20.55	100.0	V	356.0	-14.4
732.093462	27.88	46.00	18.12	100.0	V	260.0	-7.4

Final Result

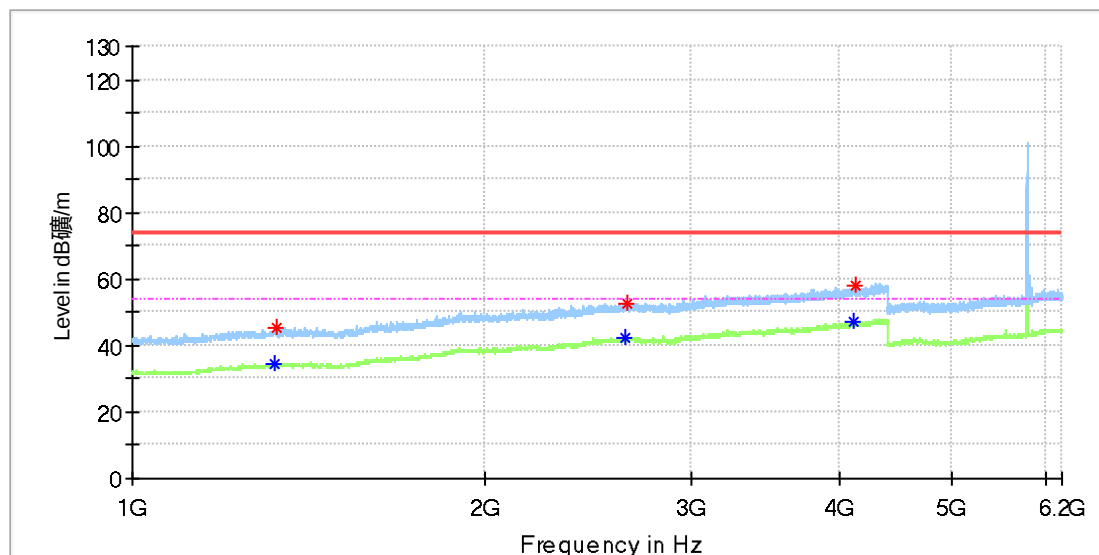
Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

1GHz - 18GHz

Note: The highest waveform in the figure is 5.8GHz Fundamental.

EUT Information

EUT Name:	Satellite Speaker
Model:	NS-SB512
Test Mode:	5.8GHz_5789MHz
Order No/Sample No:	168548303/A003970302-003
Test Voltage:	120V/60Hz
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

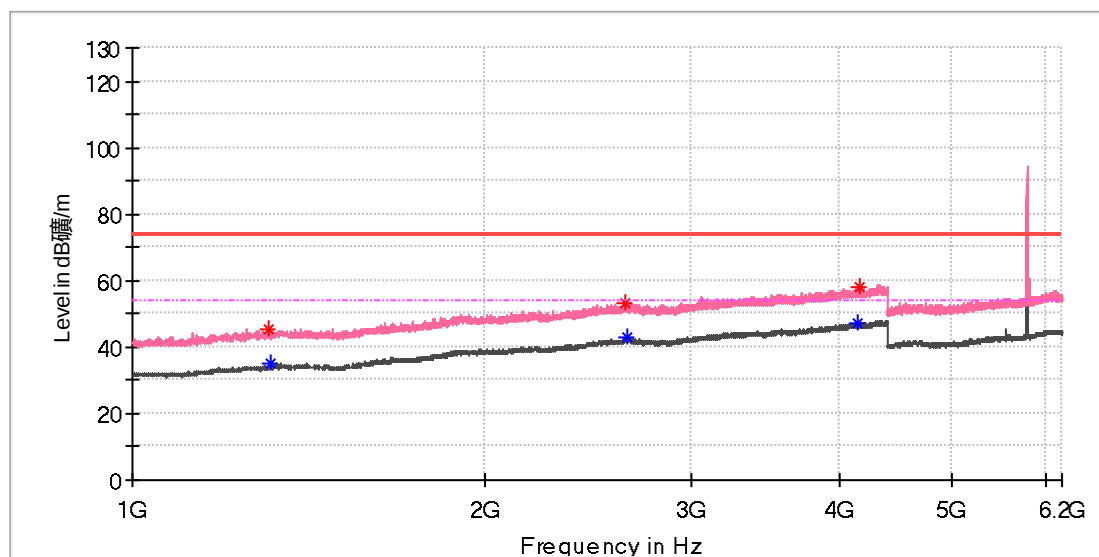
Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1320.500000	---	34.34	54.00	19.66	150.0	H	241.0	2.9
1328.500000	45.09	---	74.00	28.91	150.0	H	182.0	3.0
2634.500000	---	42.58	54.00	11.42	150.0	H	165.0	10.0
2637.000000	52.69	---	74.00	21.31	150.0	H	306.0	10.0
4119.000000	---	47.05	54.00	6.95	150.0	H	179.0	13.3
4130.500000	57.94	---	74.00	16.06	150.0	H	162.0	13.3

Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---	---		---	---

EUT Information

EUT Name:	Satellite Speaker
Model:	NS-SB512
Test Mode:	5.8GHz_5789MHz
Order No/Sample No:	168548303/A003970302-003
Test Voltage:	120V/60Hz
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

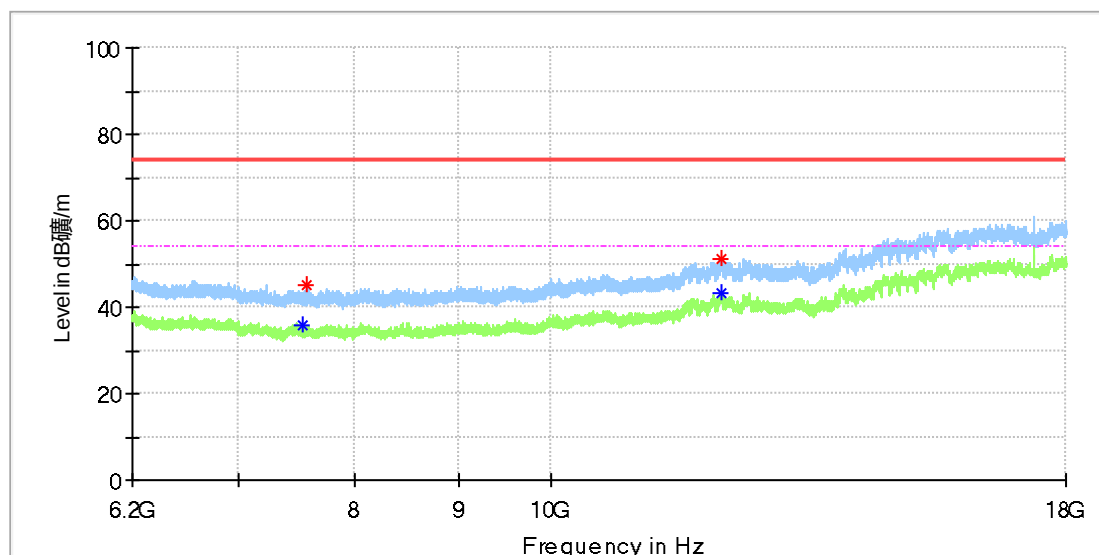
Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1305.500000	45.47	---	74.00	28.53	150.0	V	172.0	2.8
1312.500000	---	35.01	54.00	18.99	150.0	V	269.0	2.8
2631.000000	53.22	---	74.00	20.78	150.0	V	268.0	9.9
2638.500000	---	42.88	54.00	11.12	150.0	V	340.0	10.0
4152.500000	---	47.32	54.00	6.68	150.0	V	19.0	13.4
4164.000000	57.91	---	74.00	16.09	150.0	V	300.0	13.4

Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---	---		---	---

EUT Information

EUT Name:	Satellite Speaker
Model:	NS-SB512
Test Mode:	5.8GHz_5789MHz
Order No/Sample No:	168548303/A003970302-003
Test Voltage:	120V/60Hz
Remark:	Temp 23 Humi:56%
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)
7530.941667	---	35.78	54.00	18.22	150.0	H	58.0	8.7
7559.458333	44.90	---	74.00	29.10	150.0	H	7.0	8.7
12135.891667	---	43.45	54.00	10.55	150.0	H	159.0	16.4
12141.300000	50.95	---	74.00	23.05	150.0	H	325.0	16.5

Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---	---		---	---

Appendix A.3: Test Results of 20dB bandwidth

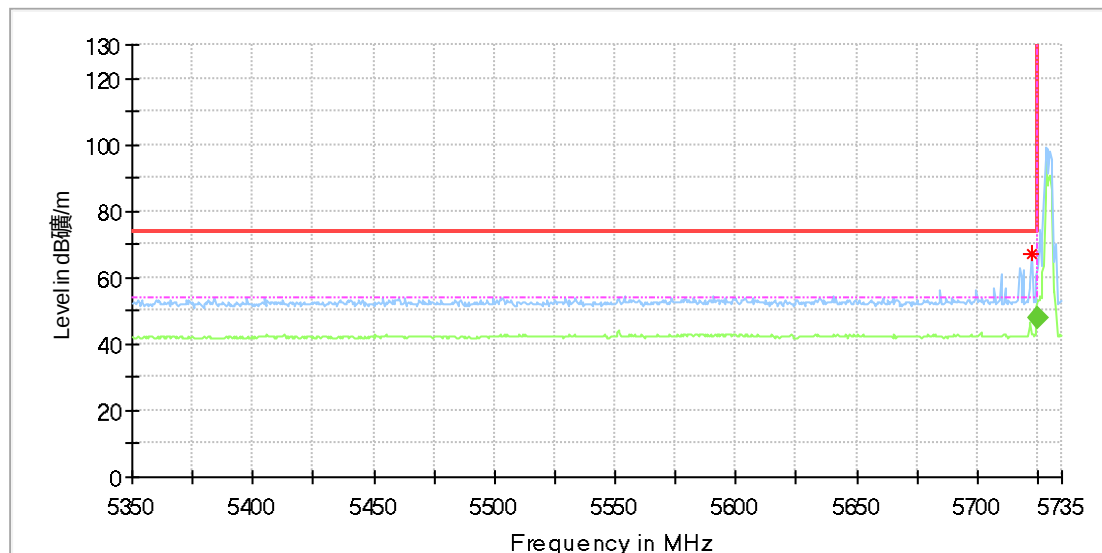
TestMode	Antenna	Frequency[MHz]	20dB bandwidth(MHz)	Limit[MHz]	Verdict
Transmitting	Ant1	5729	4.036	---	---
Transmitting	Ant1	5789	4.047	---	---
Transmitting	Ant1	5849	4.059	---	---

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

Test Report

EUT Information

EUT Name:	Satellite Speaker
Model:	NS-SB512
Test Mode:	5.8GHz_5729MHz
Order No/Sample No:	168548303/A003970302-003
Test Voltage::	120V/60Hz
Remark:	Temp 23 Humi:56%
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)
5722.500000	67.20	---	74.00	6.80	150.0	H	346.0	15.4

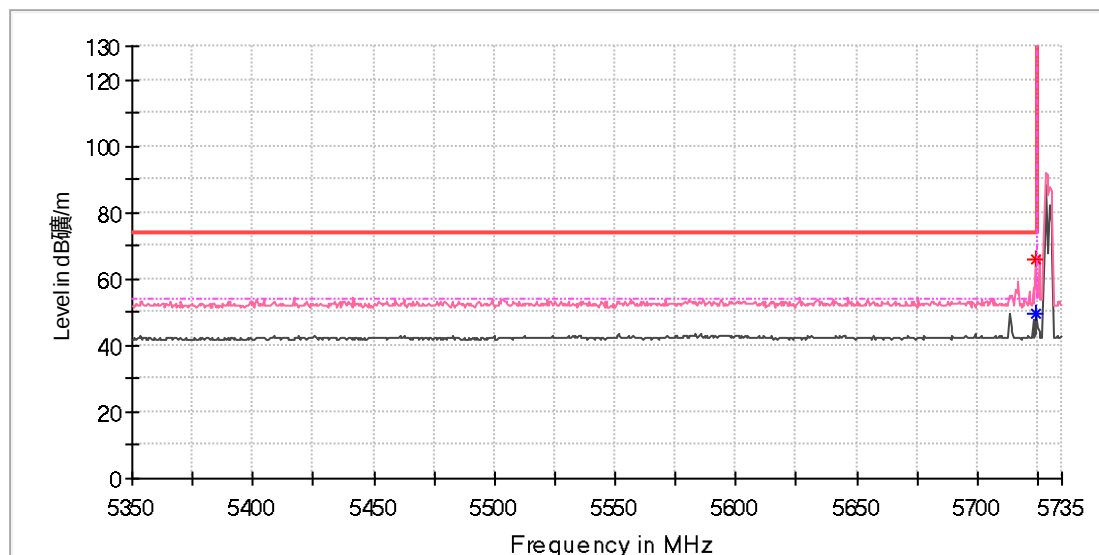
Final_Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
5725.000000	---	47.91	54.00	6.09	150.0	H	236.0	15.4

Test Report

EUT Information

EUT Name:	Satellite Speaker
Model:	NS-SB512
Test Mode:	5.8GHz_5729MHz
Order No/Sample No:	168548303/A003970302-003
Test Voltage::	120V/60Hz
Remark:	Temp 23 Humi:56%
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)
5724.000000	66.19	---	74.00	7.81	150.0	V	215.0	15.4
5724.500000	---	49.78	54.00	4.22	150.0	V	215.0	15.4

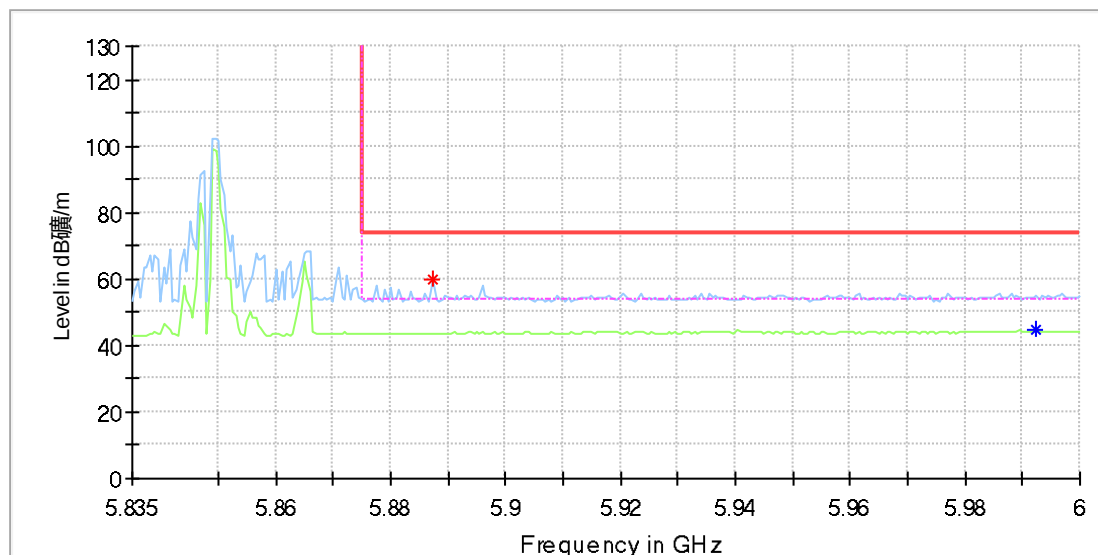
Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
100.0	100.0	100.0	100.0	100.0	100.0		100.0	

Test Report

EUT Information

EUT Name:	Satellite Speaker
Model:	NS-SB512
Test Mode:	5.8GHz_5849MHz
Order No/Sample No:	168548303/A003970302-003
Test Voltage::	120V/60Hz
Remark:	Temp 23 Humi:56%
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)
5887.500000	59.77	---	74.00	14.23	150.0	H	74.0	15.9
5992.500000	---	44.64	54.00	9.36	150.0	H	105.0	16.5

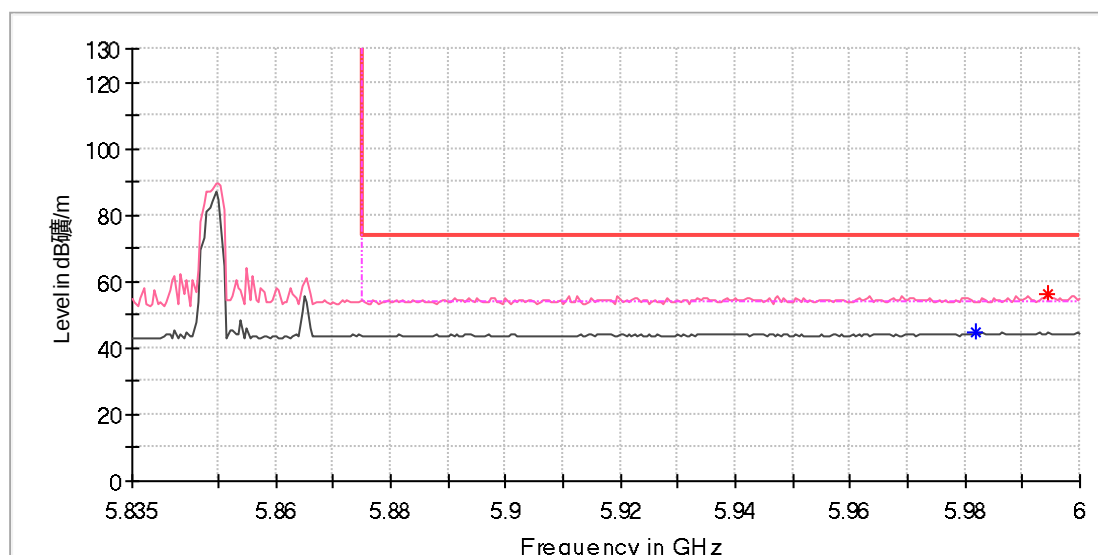
Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
100.0	100.0	100.0	100.0	100.0	100.0		100.0	

Test Report

EUT Information

EUT Name:	Satellite Speaker
Model:	NS-SB512
Test Mode:	5.8GHz_5849MHz
Order No/Sample No:	168548303/A003970302-003
Test Voltage::	120V/60Hz
Remark:	Temp 23 Humi:56%
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)
5982.000000	---	44.63	54.00	9.37	150.0	V	300.0	16.4
5994.500000	56.08	---	74.00	17.92	150.0	V	114.0	16.5

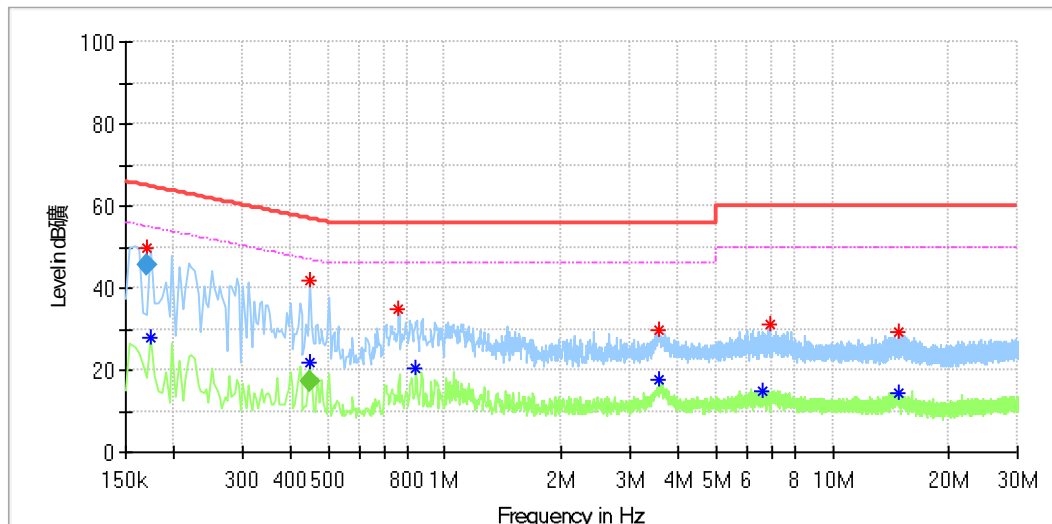
Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---	---		---	---

Appendix A.5: Test Results of Conducted Emission on AC Mains

EUT Information

EUT Name: Satellite Speaker
Order Number: 168548303
Model: NS-SB512
Test Mode: Normal working
Test Voltage: AC 120V/60Hz
Test Standard: FCC Part 15C
Test By:/Review By: Dawn Shen/Shower Dai
Tem./Hum./Pressure: 24.9°C/52.3%/101kPa
Remark: SR3



Critical_Freqs

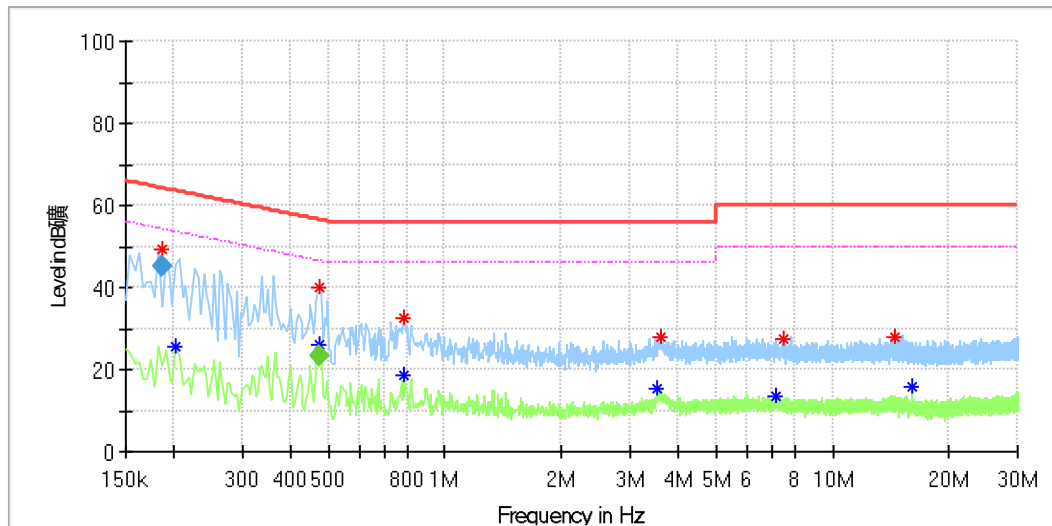
Frequency (MHz)	MaxPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)
0.169500	49.87	---	64.77	14.90	L1	9.8
0.174000	---	27.70	54.77	27.07	L1	9.8
0.449500	---	21.80	46.88	25.08	L1	9.9
0.450000	41.75	---	56.88	15.12	L1	9.9
0.758000	34.68	---	56.00	21.32	L1	9.9
0.842000	---	20.41	46.00	25.59	L1	9.9
3.546000	29.54	---	56.00	26.46	L1	10.1
3.578000	---	17.49	46.00	28.51	L1	10.1
6.562000	---	15.03	50.00	34.97	L1	10.2
6.926000	31.23	---	60.00	28.77	L1	10.2
14.734000	29.21	---	60.00	30.79	L1	10.2
14.870000	---	14.22	50.00	35.78	L1	10.2

Final Result

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.169500	45.37	---	64.99	19.61	1000.0	9.000	L1	9.8
0.449500	---	17.42	46.88	29.46	1000.0	9.000	L1	9.9

EUT Information

EUT Name: Satellite Speaker
Order Number: 168548303
Model: NS-SB512
Test Mode: Normal working
Test Voltage: AC 120V/60Hz
Test Standard: FCC Part 15C
Test By:/Review By: Dawn Shen/Shower Dai
Tem./Hum./Pressure: 24.9°C/52.3%/101kPa
Remark: SR3



Critical Freqs

Frequency (MHz)	MaxPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)
0.185500	49.22	---	64.39	15.18	N	9.7
0.202000	---	25.68	53.53	27.84	N	9.7
0.473500	---	25.93	46.37	20.45	N	9.7
0.474000	39.82	---	56.44	16.63	N	9.7
0.786000	---	18.77	46.00	27.23	N	9.7
0.786000	32.72	---	56.00	23.28	N	9.7
3.542000	---	15.12	46.00	30.88	N	9.8
3.622000	28.03	---	56.00	27.97	N	9.8
7.142000	---	13.29	50.00	36.71	N	9.8
7.510000	27.27	---	60.00	32.73	N	9.8
14.398000	27.89	---	60.00	32.11	N	9.9
16.002000	---	15.71	50.00	34.29	N	10.0

Final Result

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.185500	45.06	---	64.24	19.18	1000.0	9.000	N	9.7
0.473500	---	23.11	46.45	23.34	1000.0	9.000	N	9.7