Prüfbericht-Nr.: *Test report no.*:	**CN254HIA 002**	**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-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:	X Jonathan Li Signed by: Jonathan Li	**genehmigt von:** *authorized by*:	X Bell Hu Signed by: Bell Hu
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-NSSB512 This report is for 5.8GHz operation.

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*

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 Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden. *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.*
2	Wie vertraglich vereinbart, wurde dieses Dokument nur digital unterzeichnet. Der TÜV Rheinland hat nicht überprüft, welche rechtlichen oder sonstigen diesbezüglichen Anforderungen für dieses Dokument gelten. Diese Überprüfung liegt in der Verantwortung des Benutzers dieses Dokuments. Auf Verlangen des Kunden kann der TÜV Rheinland die Gültigkeit der digitalen Signatur durch ein gesondertes Dokument bestätigen. Diese Anfrage ist an unseren Vertrieb zu richten. Eine Umweltgebühr für einen solchen zusätzlichen Service wird erhoben. Informationen zur Verifizierung der Authentizität unserer Dokumente erhalten Sie auf folgender Webseite: go.tuv.com/digital-signature *As contractually agreed, this document has been signed digitally only. TUV Rheinland has not verified and unable to verify which legal or other pertaining requirements are applicable for this document. Such verification is within the responsibility of the user of this document. Upon request by its client, TUV Rheinland can confirm the validity of the digital signature by a separate document. Such request shall be addressed to our Sales department. An environmental fee for such additional service will be charged. For information on verifying the authenticity of our documents, please visit the following website: go.tuv.com/digital-signature*
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. *Test clauses with remark of * are subcontracted to qualified subcontractors and descripted under the respective test clause in the report.* *Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.*
4	Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnisen 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 bezueglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019. *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.*

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

Contents

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 basics 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 5.1.2 Soundbar with Subwoofer and Satellite Speakers which supports Bluetooth dual mode and 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-Soundbar with Subwoofer and Satellite Speakers
Type Designation:	NS-SB512, NS-SB512-C, TB643DW7S
Trademark:	INSIGNIA, RSR
FCC ID:	Z8M-NSSB512
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
Antenna Type:	Integral Antenna
Antenna Number:	1
Antenna Gain:	3.56 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
- Operation Description
- User Manual
- 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
Wireless subwoofer	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)

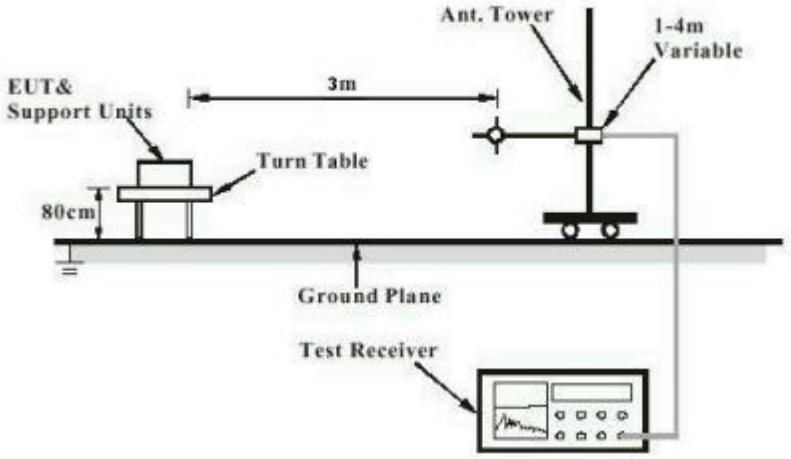


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

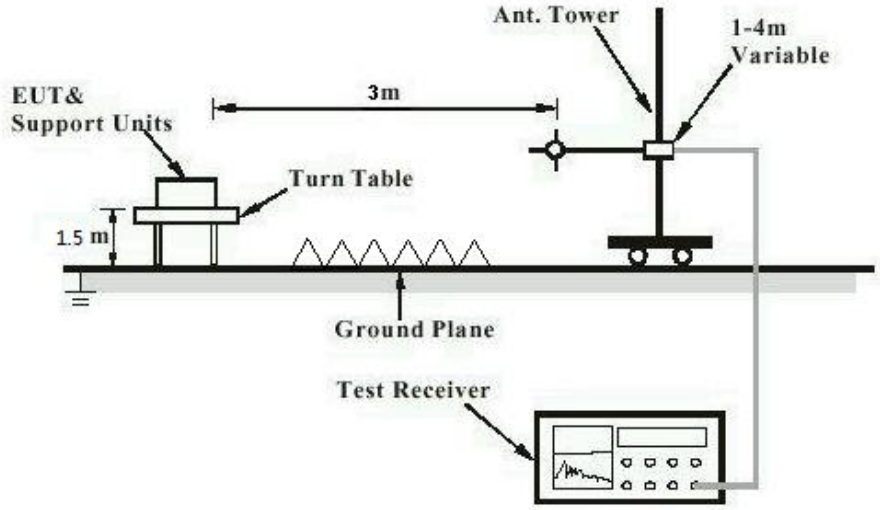


Diagram of Measurement Configuration for Mains Conduction Measurement

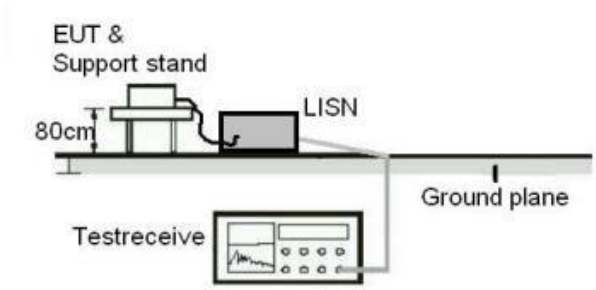
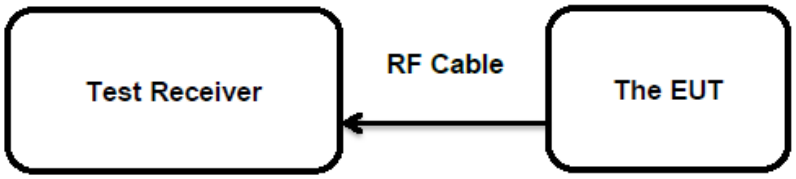


Diagram of Measurement Configuration for Conducted Transmitter Measurement



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 ℃
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.

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 ℃
Relative humidity	:	45 %
Atmospheric pressure	:	101 kPa

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.

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

Appendix A: Test Results of 5.8GHz

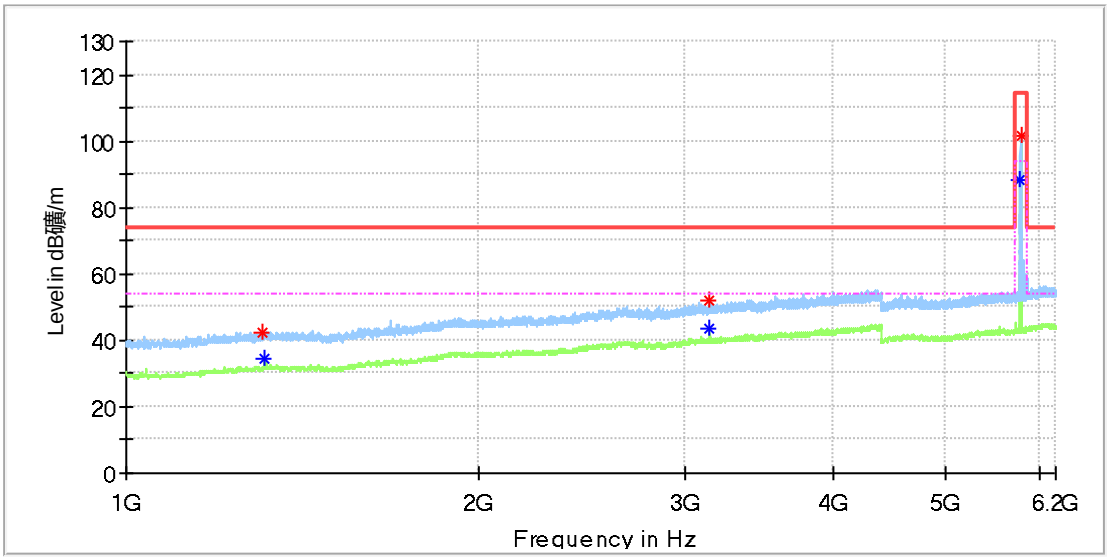
Appendix A.1: Test Results of Field strength of fundamental

The test was performed on Low/middle/high channels, here just worst case channe result is shown

Test Report

EUT Information

EUT Name:	5.1.2 Soundbar with Subwoofer and Satellite Speakers
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)
1306.500000	42.54	---	74.00	31.46	150.0	H	126.0	2.8
1312.500000	---	34.17	54.00	19.83	150.0	H	247.0	2.8
3145.500000	---	43.49	54.00	10.51	150.0	H	261.0	10.6
3146.000000	51.82	---	74.00	22.18	150.0	H	261.0	10.6
5787.500000	---	87.99	94.00	6.01	150.0	H	44.0	15.5
5788.500000	101.58	---	114.00	12.42	150.0	H	44.0	15.5

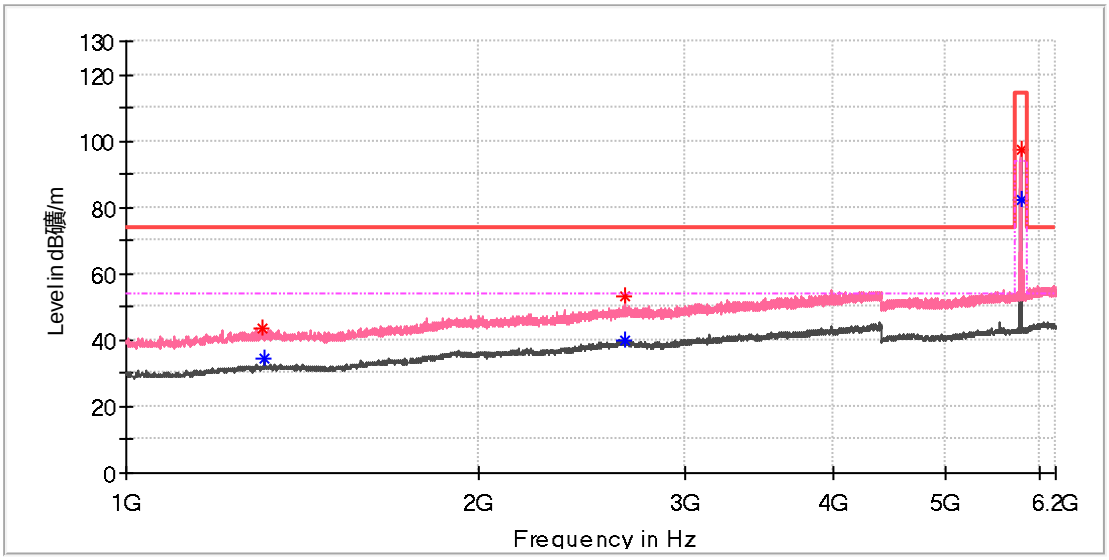
Final_Result

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

Test Report

EUT Information

EUT Name:	5.1.2 Soundbar with Subwoofer and Satellite Speakers
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)
1308.000000	43.55	---	74.00	30.45	150.0	V	351.0	2.8
1312.000000	---	34.41	54.00	19.59	150.0	V	286.0	2.8
2661.000000	---	40.14	54.00	13.86	150.0	V	264.0	10.2
2664.000000	53.21	---	74.00	20.79	150.0	V	264.0	10.2
5789.500000	97.41	---	114.00	16.59	150.0	V	17.0	15.5
5790.500000	---	82.39	94.00	11.61	150.0	V	109.0	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)
---	---	---	---	---	---		---	---

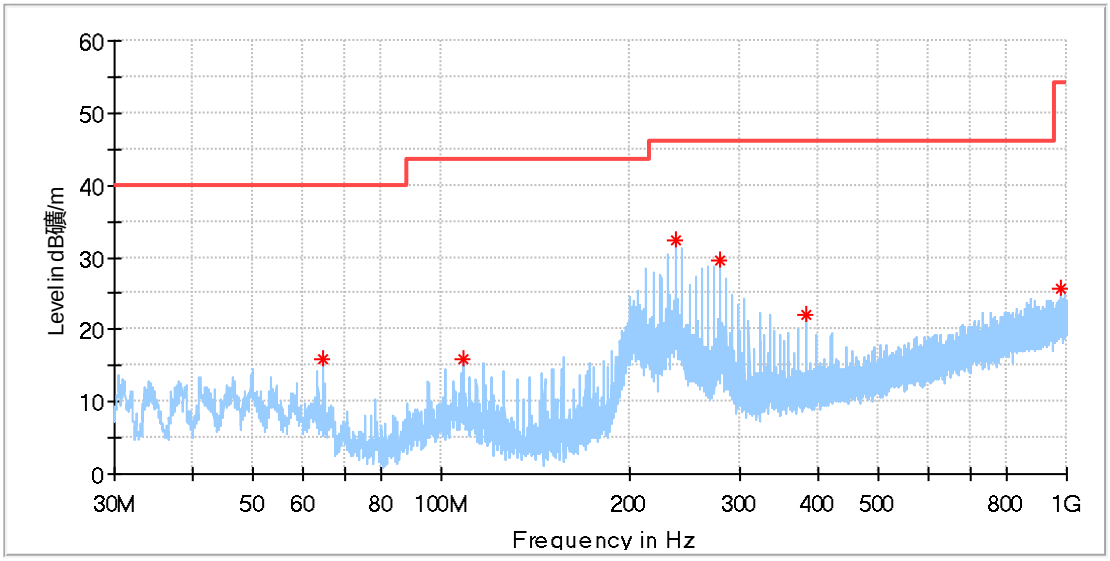
Appendix A.2: Test Results of Radiated Spurious Emissions

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 channe 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:	5.1.2 Soundbar with Subwoofer and Satellite Speakers
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 15.209
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

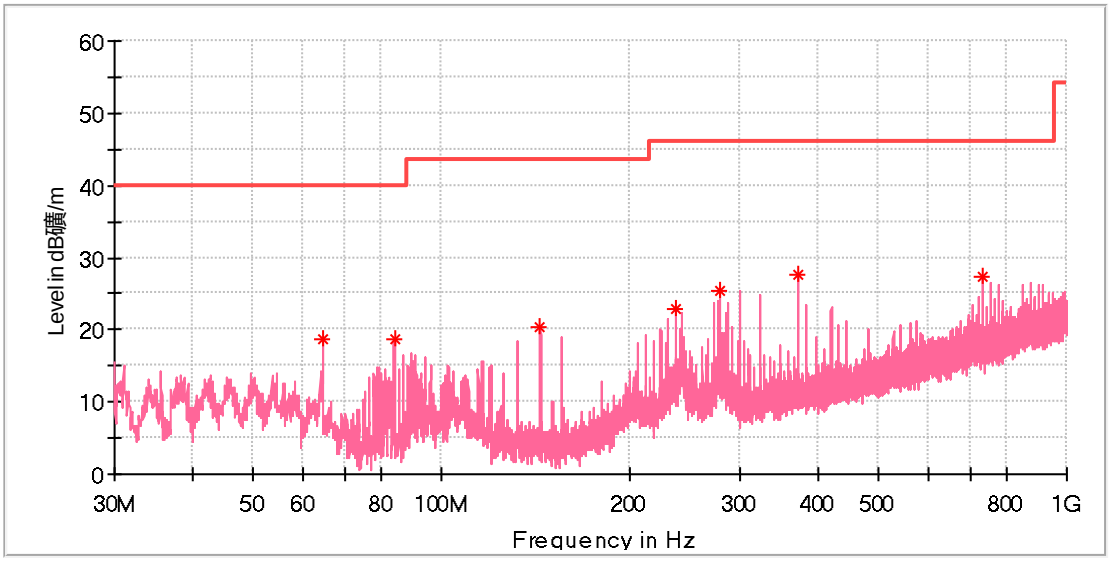
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
64.509615	15.99	40.00	24.01	100.0	H	351.0	-20.1
108.271539	15.78	43.50	27.72	100.0	H	310.0	-19.1
236.535385	32.27	46.00	13.73	100.0	H	325.0	-17.9
279.551154	29.62	46.00	16.38	100.0	H	294.0	-16.7
384.050000	21.94	46.00	24.06	100.0	H	218.0	-14.1
979.406154	25.54	54.00	28.46	100.0	H	177.0	-3.8

Final_Result

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

EUT Information

EUT Name:	5.1.2 Soundbar with Subwoofer and Satellite Speakers
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 15.209
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)
64.509615	18.83	40.00	21.17	100.0	V	32.0	-20.1
84.021539	18.62	40.00	21.38	100.0	V	279.0	-22.7
144.012308	20.45	43.50	23.05	100.0	V	15.0	-22.4
236.572692	22.85	46.00	23.15	100.0	V	0.0	-17.9
279.551154	25.28	46.00	20.72	100.0	V	6.0	-16.7
372.036923	27.64	46.00	18.36	100.0	V	87.0	-14.4
732.093462	27.27	46.00	18.73	100.0	V	271.0	-7.4

Final_Result

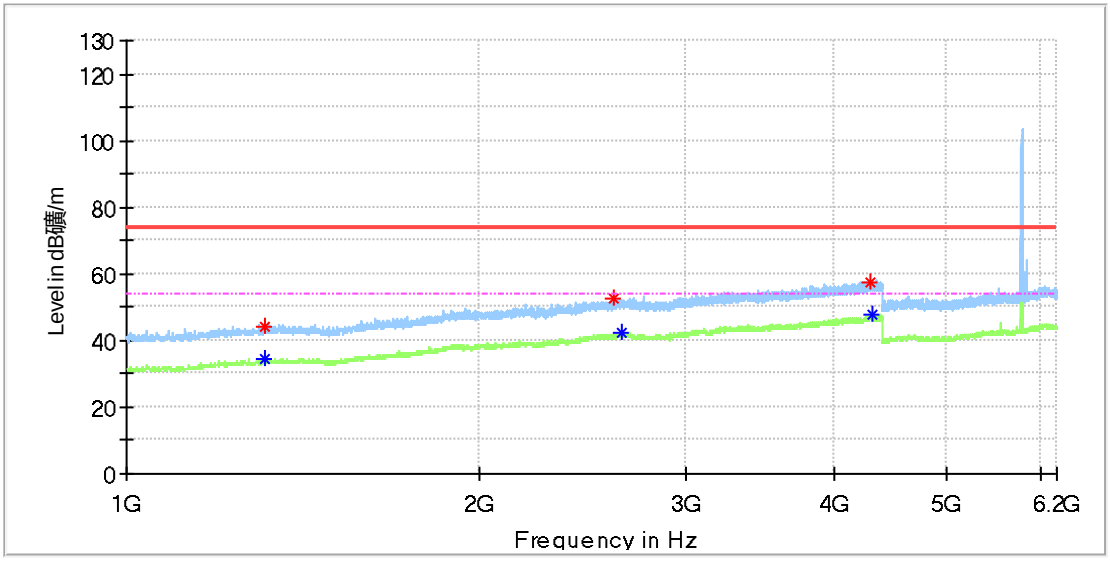
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

1GHz - 18GHz

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

EUT Information

EUT Name:	5.1.2 Soundbar with Subwoofer and Satellite Speakers
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 15.209
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

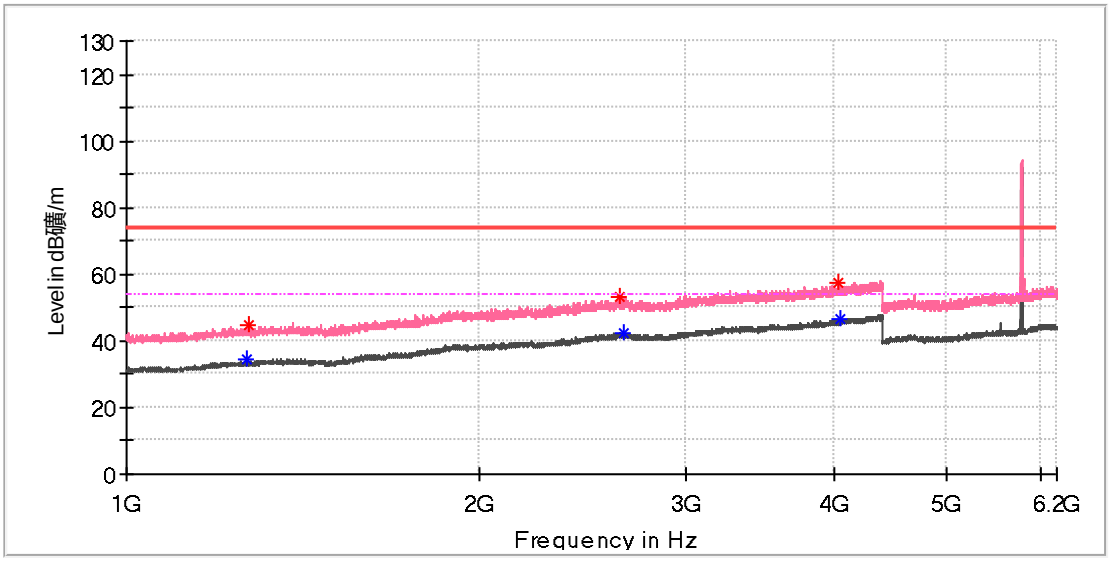
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1309.500000	44.36	---	74.00	29.64	150.0	H	324.0	2.8
1311.500000	---	34.48	54.00	19.52	150.0	H	190.0	2.8
2604.500000	52.89	---	74.00	21.11	150.0	H	201.0	9.6
2639.000000	---	42.11	54.00	11.89	150.0	H	50.0	10.0
4306.000000	57.39	---	74.00	16.61	150.0	H	154.0	13.7
4321.500000	---	47.48	54.00	6.52	150.0	H	31.0	13.8

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:	5.1.2 Soundbar with Subwoofer and Satellite Speakers
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 15.209
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

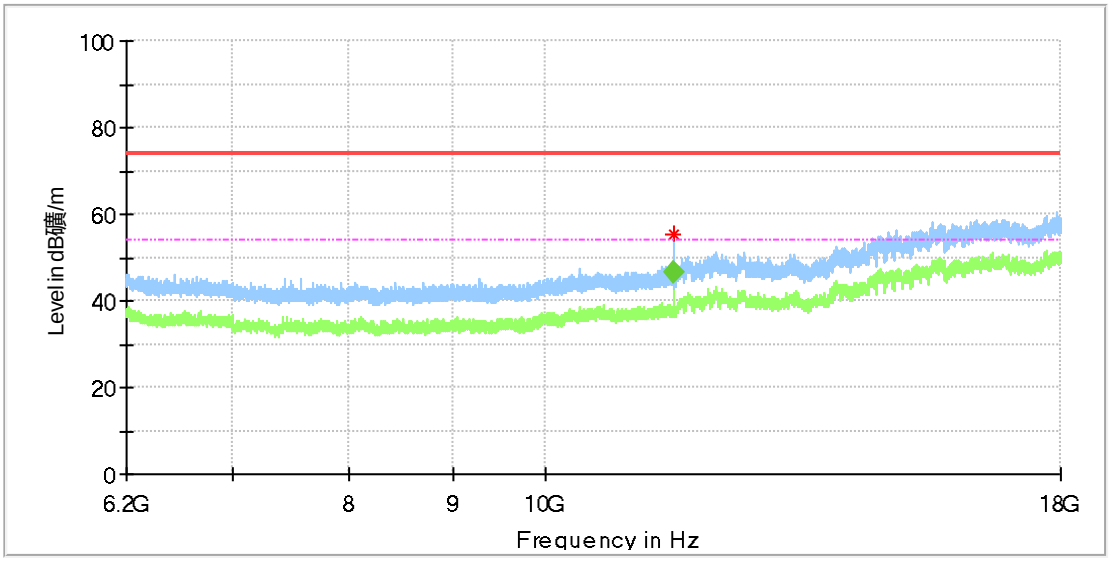
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1264.500000	---	34.23	54.00	19.77	150.0	V	0.0	2.7
1272.000000	44.93	---	74.00	29.07	150.0	V	53.0	2.7
2629.500000	53.02	---	74.00	20.98	150.0	V	214.0	9.9
2650.500000	---	42.31	54.00	11.69	150.0	V	141.0	10.2
4032.000000	57.43	---	74.00	16.57	150.0	V	285.0	13.1
4052.500000	---	46.77	54.00	7.23	150.0	V	228.0	13.1

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:	5.1.2 Soundbar with Subwoofer and Satellite Speakers
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 15.209
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

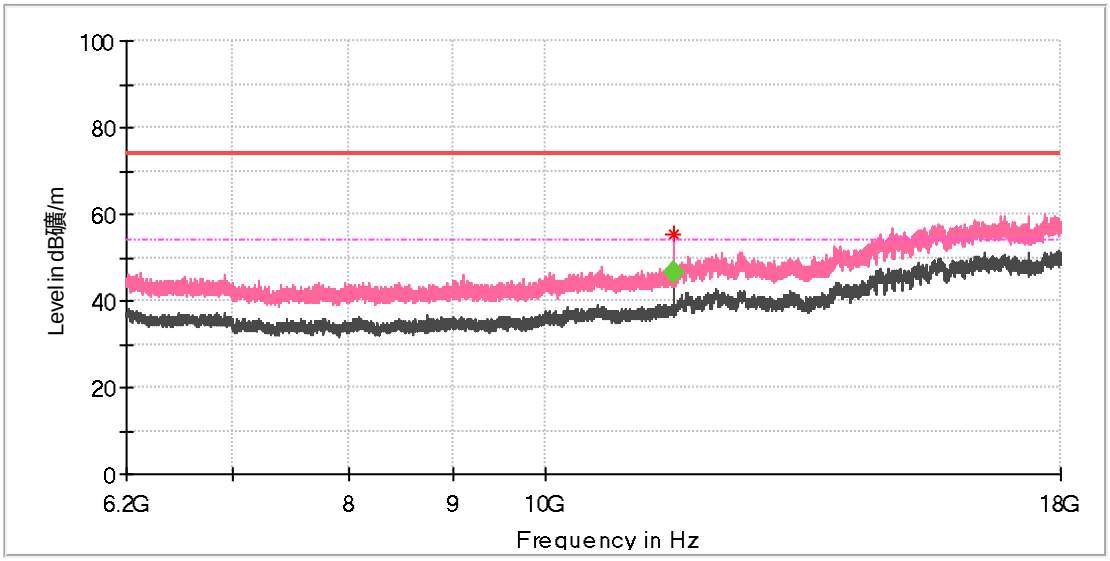
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
11576.375000	55.50	---	74.00	18.50	150.0	H	357.0	13.4

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
11578.097500	---	46.48	54.00	7.52	150.0	H	357.0	13.4

EUT Information

EUT Name:	5.1.2 Soundbar with Subwoofer and Satellite Speakers
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 15.209
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)
11578.833333	55.47	---	74.00	18.53	150.0	V	86.0	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)
11577.800833	---	46.34	54.00	7.66	150.0	V	86.0	13.4

Appendix A.3: Test Results of 20dB bandwidth

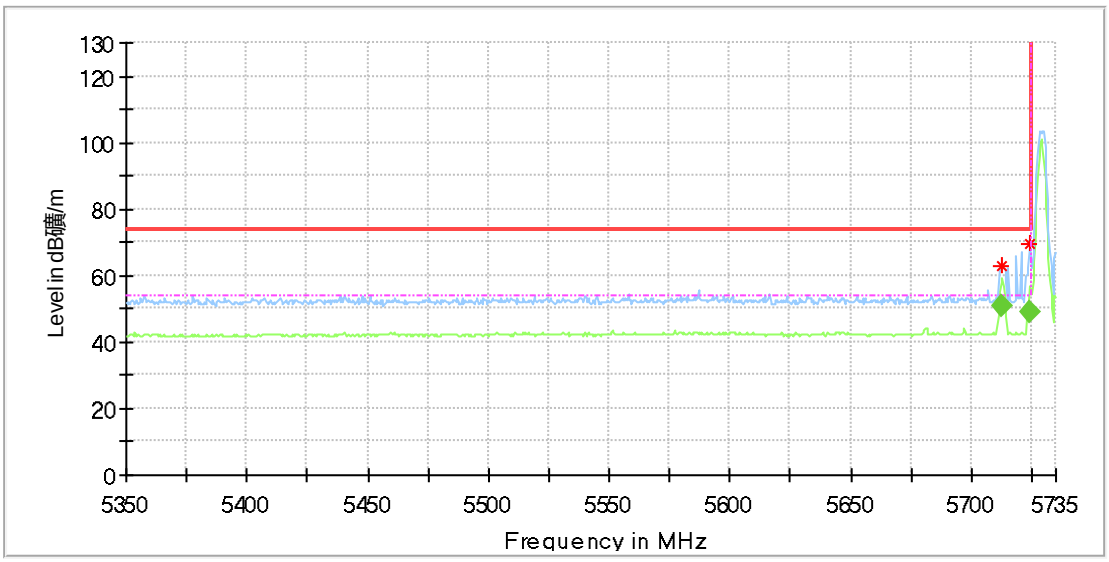
TestMode	Antenna	Frequency[MHz]	20dB bandwidth(MHz)	Limit[MHz]	Verdict
Transmitting	Ant1	5729	4.383	---	---
Transmitting	Ant1	5789	4.492	---	---
Transmitting	Ant1	5849	4.361	---	---

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

Test Report

EUT Information

EUT Name:	5.1.2 Soundbar with Subwoofer and Satellite Speakers
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)
5713.000000	62.63	---	74.00	11.37	150.0	H	81.0	15.4
5724.500000	69.64	---	74.00	4.36	150.0	H	13.0	15.4

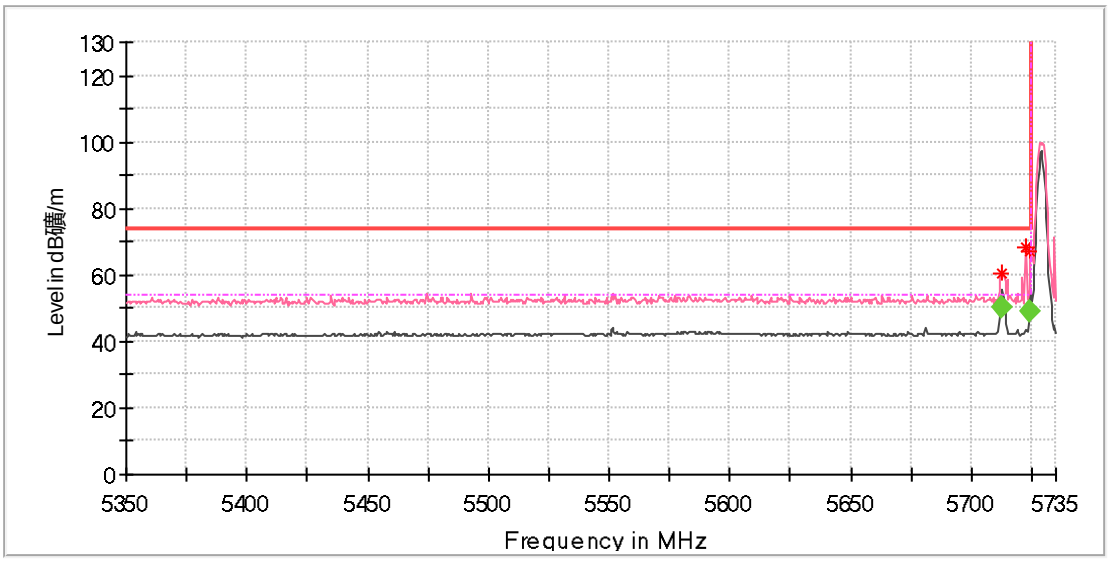
Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
5713.000000	---	50.66	54.00	3.34	150.0	H	81.0	15.4
5724.500000	---	49.25	54.00	4.75	150.0	H	13.0	15.4

Test Report

EUT Information

EUT Name:	5.1.2 Soundbar with Subwoofer and Satellite Speakers
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)
5713.000000	60.33	---	74.00	13.67	150.0	V	248.0	15.4
5722.500000	68.43	---	74.00	5.57	150.0	V	248.0	15.4
5724.500000	67.15	---	74.00	6.85	150.0	V	106.0	15.4

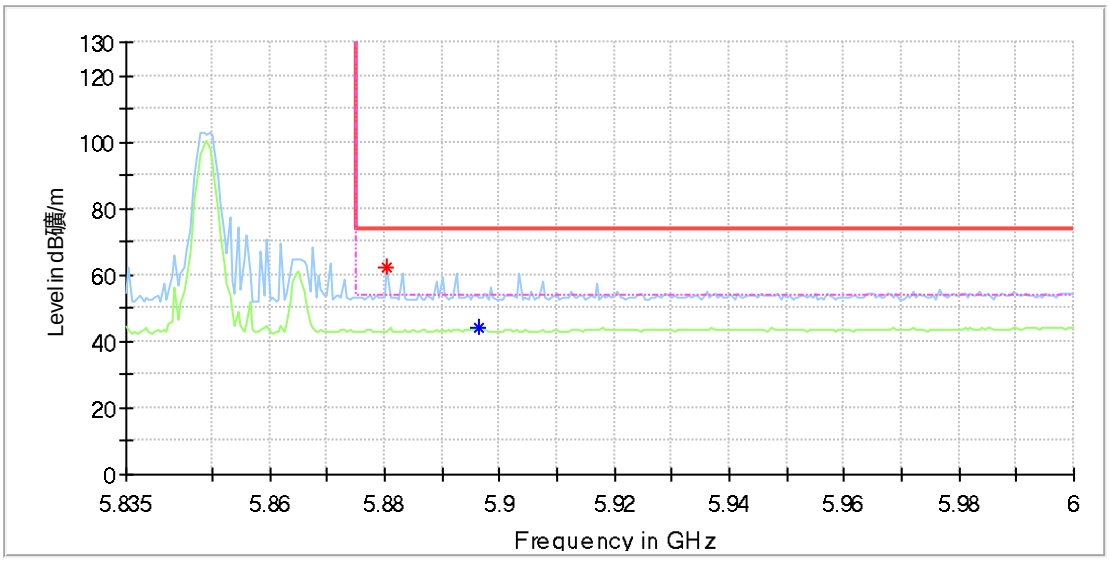
Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
5712.861111	---	50.07	54.00	3.93	150.0	V	248.0	15.4
5724.500000	---	48.85	54.00	5.15	150.0	V	106.0	15.4

Test Report

EUT Information

EUT Name:	5.1.2 Soundbar with Subwoofer and Satellite Speakers
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)
5880.500000	62.31	---	74.00	11.69	150.0	H	0.0	15.9
5896.500000	---	44.38	54.00	9.62	150.0	H	13.0	16.0

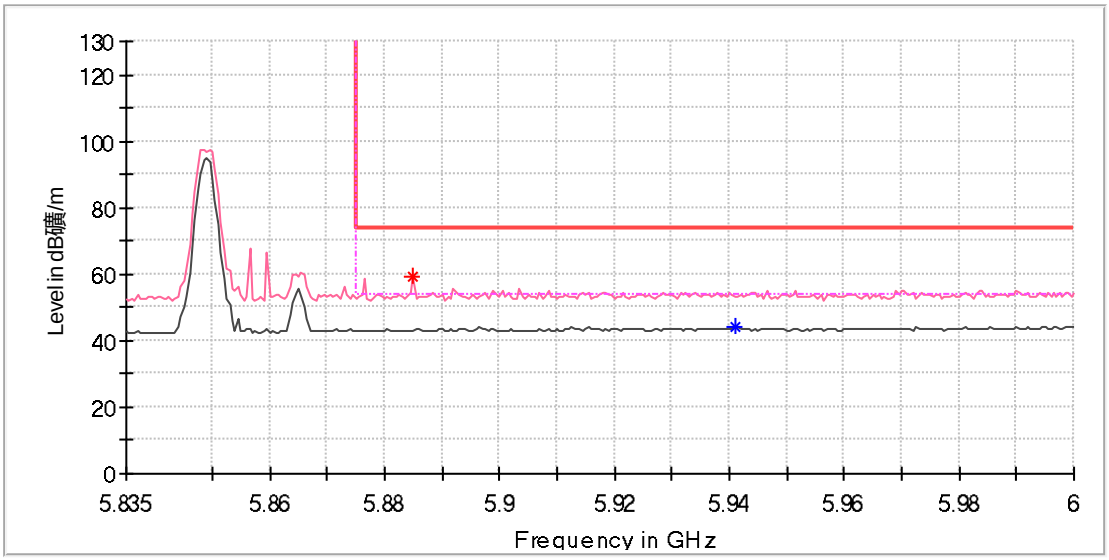
Final_Result

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

Test Report

EUT Information

EUT Name:	5.1.2 Soundbar with Subwoofer and Satellite Speakers
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)
5885.000000	59.38	---	74.00	14.62	150.0	V	205.0	15.9
5941.000000	---	43.93	54.00	10.07	150.0	V	343.0	16.2

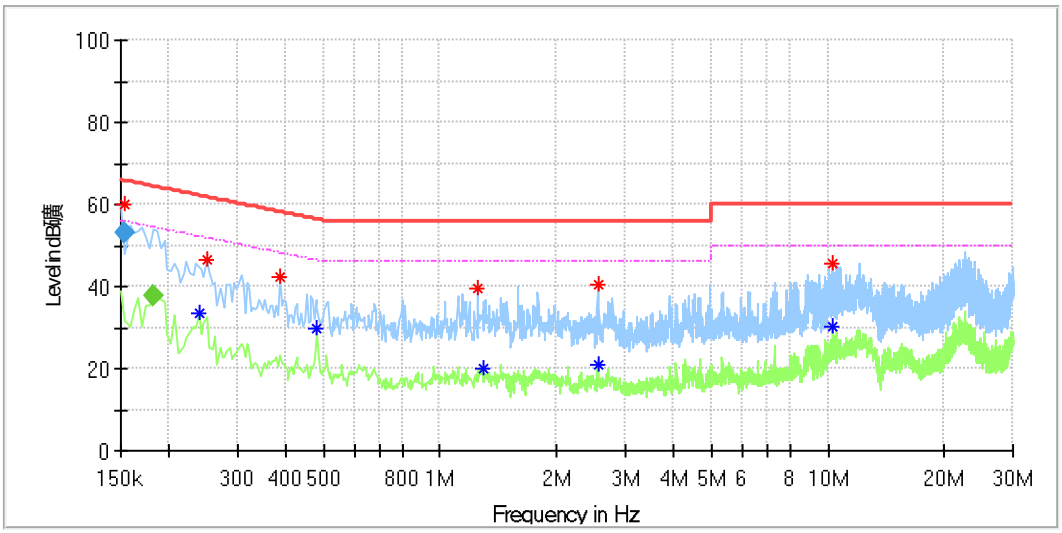
Final_Result

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:	5.1.2 Soundbar with Subwoofer and Satellite Speakers
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

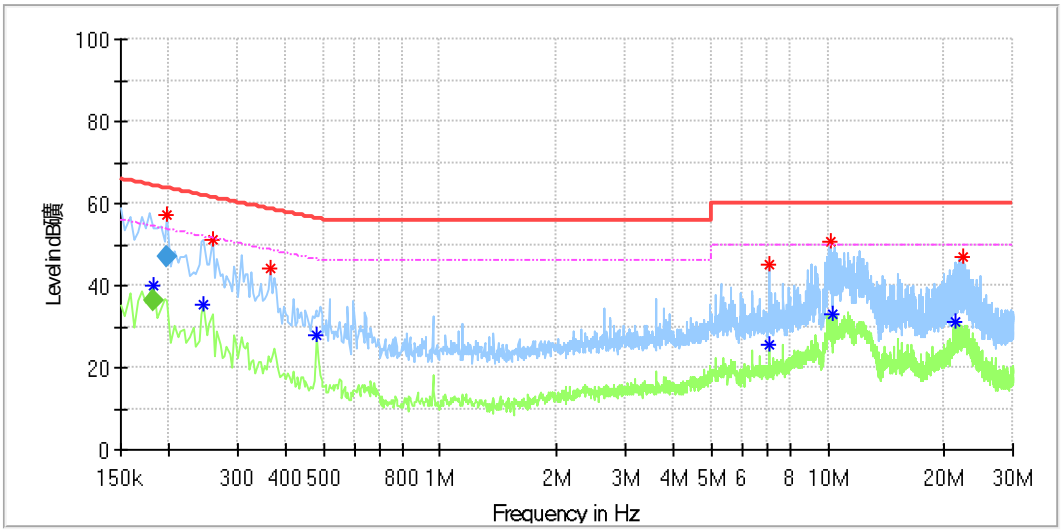
Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.154000	60.14	---	66.00	5.86	L1	9.8
0.181500	---	38.28	54.21	15.93	L1	9.8
0.238000	---	33.39	52.17	18.77	L1	9.8
0.250000	46.73	---	61.76	15.03	L1	9.8
0.386000	42.40	---	58.15	15.75	L1	9.9
0.482000	---	29.62	46.31	16.68	L1	9.9
1.250000	39.46	---	56.00	16.54	L1	10.0
1.286000	---	19.91	46.00	26.09	L1	10.0
2.546000	40.25	---	56.00	15.75	L1	10.1
2.550000	---	20.84	46.00	25.16	L1	10.1
10.302000	45.71	---	60.00	14.29	L1	10.2
10.302000	---	30.05	50.00	19.95	L1	10.2

Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.154000	53.14	---	65.78	12.65	1000.0	9.000	L1	9.8
0.181500	---	37.56	54.42	16.85	1000.0	9.000	L1	9.8

EUT Information

EUT Name:	5.1.2 Soundbar with Subwoofer and Satellite Speakers
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)
0.181500	---	39.92	54.39	14.47	N	9.7
0.197500	57.33	---	63.69	6.37	N	9.7
0.246000	---	35.27	51.89	16.62	N	9.7
0.258000	51.00	---	61.50	10.50	N	9.7
0.366000	44.40	---	58.59	14.19	N	9.7
0.482000	---	28.10	46.31	18.20	N	9.7
7.038000	---	25.78	50.00	24.22	N	9.8
7.038000	44.97	---	60.00	15.03	N	9.8
10.214000	50.84	---	60.00	9.16	N	9.9
10.250000	---	33.19	50.00	16.81	N	9.9
21.266000	---	31.35	50.00	18.65	N	10.0
22.182000	47.03	---	60.00	12.97	N	10.0

Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.181500	---	36.29	54.42	18.12	1000.0	9.000	N	9.7
0.197500	47.20	---	63.72	16.51	1000.0	9.000	N	9.7