

Prüfbericht-Nr.: Test report no.:	JP23VU3C 003	Auftrags-Nr.: Order no.:	168457367	Seite 1 von 21 Page 1 of 21	
Kunden-Referenz-Nr.: Client reference no.:	N/A	Auftragsdatum: Order date:	2024-01-05		
Auftraggeber: Client:	Faurecia Clarion Electronics Co., Ltd. 7-2 Shintoshin, Chuo-ku, Saitama-shi, Saitama 330-0081 Japan				
Prüfgegenstand: Test item:	Car Audio				
Bezeichnung / Typ-Nr.: Identification / Type no.:	P2301				
Auftrags-Inhalt: Order content:	Test Report				
Prüfgrundlage: Test specification:	CFR47 FCC Part 15: Subpart E Section 15.407 RSS-247 Issue 3 August 2023 RSS-Gen Issue 5 February 2021				
Wareneingangsdatum: Date of sample receipt:	2024-01-10	Please refer to Photo Document			
Prüfmuster-Nr.: Test sample no.:	2024-01-10				
Prüfzeitraum: Testing period:	2024-01-10 - 2024-02-29				
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:	2024-03-06 Signed by: Jonathan Li		Ausstellungsdatum: Issue date:	2024-03-06 Signed by: Bell Hu	
Stellung / Position:	Sachverständige(r)/Expert		Stellung / Position:	Sachverständige(r)/Expert	
Sonstiges / Other:	FCC ID: AX2P2301 IC: 419C-P2301, HVIN: P2301 This report is for 5.8GHz Wi-Fi function.				
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				
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V05

Prüfbericht-Nr.: JP23VU3C 003
Test report no.:

Seite 2 von 21
Page 2 of 21

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. <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 115:2021, 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 115:2021, 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>

Prüfbericht - Nr.: JP23VU3C 003
Test Report No.:

Seite 3 von 21
Page 3 of 21

Test Summary

5.1.1 ANTENNA REQUIREMENT

RESULT: Pass

5.1.2 MAXIMUM OUTPUT POWER

RESULT: Pass

5.1.3 CONDUCTED POWER SPECTRAL DENSITY

RESULT: Pass

5.1.4 FREQUENCY STABILITY

RESULT: Pass

5.1.5 6dB BANDWIDTH

RESULT: Pass

5.1.6 99% BANDWIDTH

RESULT: Pass

5.1.7 RADIATED SPURIOUS EMISSION

RESULT: Pass

Contents

1	GENERAL REMARKS	5
1.1	COMPLEMENTARY MATERIALS.....	5
2	TEST SITES.....	6
2.1	TEST FACILITIES	6
2.2	LIST OF TEST AND MEASUREMENT INSTRUMENTS	6
2.3	TRACEABILITY	7
2.4	CALIBRATION.....	7
2.5	MEASUREMENT UNCERTAINTY	7
2.6	LOCATION OF ORIGINAL DATA	8
2.7	STATUS OF FACILITY USED FOR TESTING	8
3	GENERAL PRODUCT INFORMATION	9
3.1	PRODUCT FUNCTION AND INTENDED USE	9
3.2	RATINGS AND SYSTEM DETAILS.....	9
3.3	INDEPENDENT OPERATION MODES.....	10
3.4	NOISE GENERATING AND NOISE SUPPRESSING PARTS	10
3.5	SUBMITTED DOCUMENTS.....	10
4	TEST SET-UP AND OPERATION MODES.....	11
4.1	PRINCIPLE OF CONFIGURATION SELECTION	11
4.2	TEST OPERATION AND TEST SOFTWARE	11
4.3	SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT	11
4.4	COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE	11
4.5	TEST SETUP DIAGRAM	12
5	TEST RESULTS	14
5.1	TRANSMITTER REQUIREMENT & TEST SUITES.....	14
5.1.1	<i>Antenna Requirement.....</i>	<i>14</i>
5.1.2	<i>Maximum Output Power.....</i>	<i>15</i>
5.1.3	<i>Conducted Power Spectral Density.....</i>	<i>16</i>
5.1.4	<i>Frequency Stability.....</i>	<i>17</i>
5.1.5	<i>6dB Bandwidth</i>	<i>18</i>
5.1.6	<i>99% Bandwidth.....</i>	<i>19</i>
5.1.7	<i>Radiated Spurious Emission</i>	<i>20</i>
6	PHOTOGRAPHS OF THE TEST SET-UP	21
7	LIST OF TABLES.....	21

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 Wi-Fi

Appendix B: Photographs of the Test Set-up.

2 Test Sites

2.1 Test Facilities

TÜV Rheinland (Shenzhen) Co., Ltd.

No. 362 Huanguan Road Middle, Longhua District, 518110, Shenzhen, P. R. China.

FCC Accreditation Designation No.: 694916

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	2023-09-22	2024-09-21
MXG X-Series RF Vector Signal Generator	Keysight	N5182B	MY61250137	2023-09-22	2024-09-21
EXG X-Series Microwave Analog Signal Generator	Keysight	N5173B	MY61250141	2023-09-22	2024-09-21
DC power supply	Keysight	E3642A	MY61276100	2023-09-22	2024-09-21
Power Control Unit	Tonscend	JS0806-4ADC	N/A	2023-09-22	2024-09-21
Automation Control Unit	Tonscend	JS0806-2	21C8060396	2023-09-22	2024-09-21
Test Software	Tonscend	JS1120-3	N/A	N/A	N/A
Control PC	Lenovo	TianYi510S-071MB	Y LX23JMF	N/A	N/A
Shielding Room 8#	Albatross	SR8	APC17151-SR8	2021-06-22	2024-06-22
Unwanted Emission Testing (TS9975)					
Equipment	Manufacturer	Model	Serial No.	Cal. Date	Cal. until
EMI Test Receiver	R&S	ESR 7	102021	2023-07-26	2024-07-25
Signal Analyzer	R&S	FSV 40	101439	2023-07-26	2024-07-25
System Controller Interface	R&S	SCI-100	S10010038	N/A	N/A
Filterbank	R&S	Wlan	100759	2023-07-26	2024-07-25
OSP	R&S	OSP 120	102040	N/A	N/A
Pre-amplifier	R&S	SCU08F1	08320031	2023-07-26	2024-07-25
Amplifier	R&S	SCU-18F	180070	2023-07-26	2024-07-25
Amplifier	R&S	SCU40A	100475	2023-07-26	2024-07-25
Trilog Broadband Antenna (30 MHz - 7 GHz)	Schwarzbeck	VULB 9162	193	2022-08-07	2024-08-06

Double-Ridged Antenna (1 -18 GHz)	ETS-LINDGREN	3117	00218717	2022-08-07	2024-08-06
Wideband Ridged Horn Antenna (18-40 GHz)	Steatite	QMS-00880	19067	2022-08-28	2024-08-27
Active Loop Antenna	Schwarzbeck	FMZB 1513	302	2022-08-07	2024-08-06
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	2021-06-22	2024-06-22

Conducted Emission				
Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
EMI Test Receiver	R&S	ESR3	102680	2024-02-23
Artificial Mains Network	R&S	ENV216	101445	2024-02-23
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) 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, 518110, Shenzhen, P. R. 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 Car Audio, which supports Bluetooth(BDR/EDR)and 2.4GHz/5GHz Wi-Fi wireless technologies.

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:	Car Audio
Type Designation:	P2301
FCC ID:	AX2P2301
IC:	419C-P2301
PMN:	Car Audio
HVIN:	P2301
Operating Voltage:	DC14V
Technical Specification of 5.8GHz Wi-Fi	
Operating Frequency:	5745–5825MHz for 802.11 a/n20/n40/ac20/ac40/ac80
Type of Modulation:	OFDM(BPSK/QPSK/16QAM/64QAM) OFDMA(BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM)
Data Rate:	6/9/12/18/24/36/48/54 Mbps for 802.11a MCS0 ~ MCS15 for 802.11 20/n40/ac20/ac40/ac80
Channel Number:	5 channels for 802.11a/n20/ac20 2 channels for 802.11n40/ac40 1 channels for 802.11ac80
Channel Separation:	20MHz, 40MHz, 80MHz
Antenna Type:	Integral Antenna
Antenna Number:	1
Antenna Gain:	-0.35dBi (Provided by the Client)

Table 4: RF Channel and Frequency of 5.8GHz Wi-Fi

U-NII-3					
20MHz Bandwidth		40MHz Bandwidth		80MHz Bandwidth	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	151	5755	155	5775
153	5765	159	5795		
157	5785				
161	5805				
165	5825				

3.3 Independent Operation Modes

The basic operation modes are:

A. On, 5.8GHz Wi-Fi wireless transmitting mode

- 1) Low Channel
- 2) Middle Channel
- 3) High Channel

B. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

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

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 tests were performed on model P2301 in this report.

4.3 Special Accessories and Auxiliary Equipment

Table 5: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N	Rating
Laptop	Lenovo	T480	PF-16A6N8	/
Portable Laptop	Lenovo	ThinkPad T480	10Q67059	/

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)

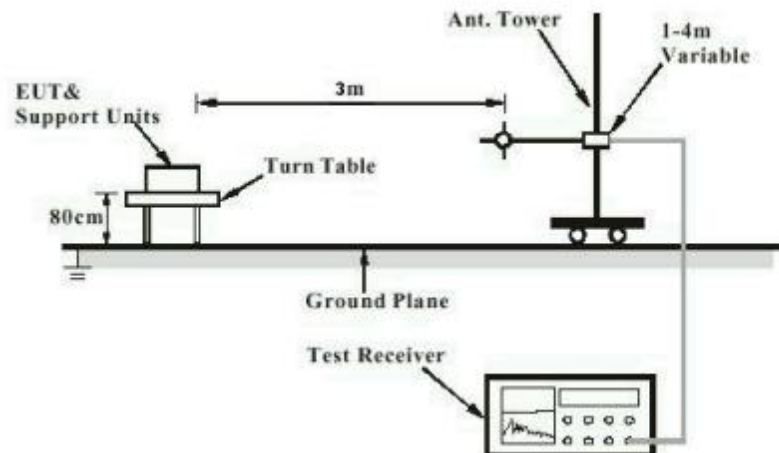


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

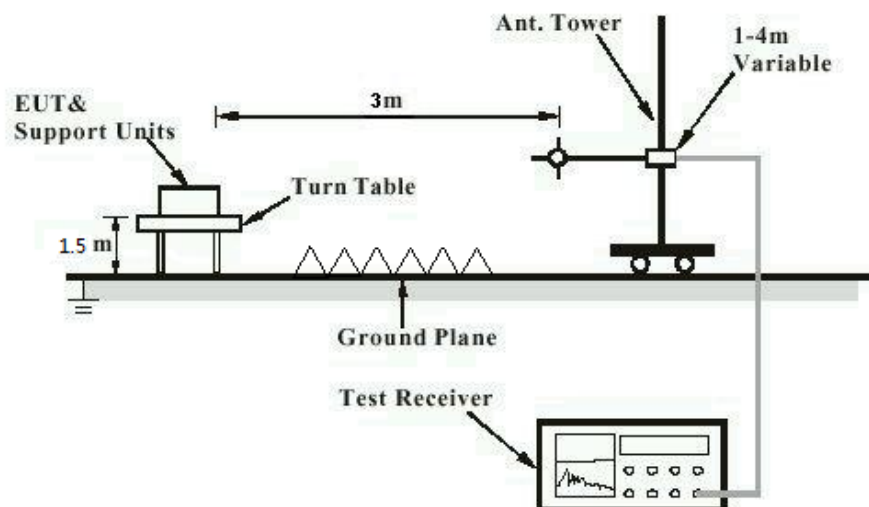
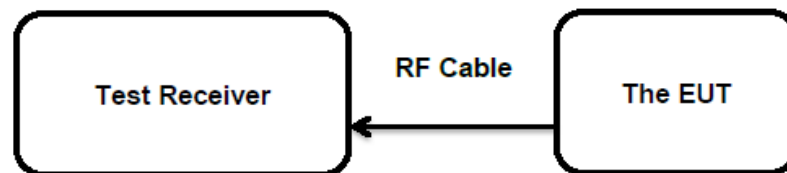


Diagram of Measurement Configuration for Conducted Transmitter Measurement



5 Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

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

Test standard	:	FCC Part 15.203 RSS-Gen Clause 6.8
Limit	:	the use of antennas with directional gains that do not exceed 6 dBi

According to the manufacturer declared, the EUT has an Integral Antenna, the directional gain of antenna is -0.35dBi, 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 Output Power

RESULT:
Pass
Test Specification

Test standard : FCC Part 15.407 (a)
RSS-247 clause 6.2

Basic standard : ANSI C63.10: 2013

Limits : <1W (30dBm) (5725-5850MHz)

Kind of test site : Shielded Room

Test Setup

Date of testing : 2024-01-10 - 2024-02-29

Input voltage : DC 14V

Operation mode : A

Test channel : Low / Middle / High

Ambient temperature : 25.2 °C

Relative humidity : 37 %

Atmospheric pressure : 101 kPa

For details refer to following test result.

Table 6: Test Result of Maximum Conducted Output Power, 5.8GHz Wi-Fi

Test Mode	Data Rate	Test Channel	Measured Average Power		Limit (W)
			(dBm)	(W)	
802.11a	1 Mbps	149	9.29	0.008	< 1.0
		157	9.42	0.009	
		165	9.64	0.009	
802.11n (HT20)	MCS0	149	8.28	0.007	
		157	8.53	0.007	
		165	8.94	0.008	
802.11n (HT40)	MCS0	149	8.75	0.007	
		157	8.90	0.008	
802.11ac (VHT20)	MCS0	165	8.27	0.007	
		151	8.58	0.007	
		159	8.87	0.008	
802.11ac (VHT40)	MCS0	151	7.66	0.006	
		159	7.98	0.006	
802.11ac (VHT80)	MCS0	155	7.73	0.006	
Maximum Measured Value			9.64	0.009	
Max. e.i.r.p.=9.64dBm-0.35dBi=9.29dBm, which is less than 36dBm=4W.					

Prüfbericht - Nr.: JP23VU3C 003
Test Report No.:Seite 16 von 21
Page 16 of 21

5.1.3 Conducted Power Spectral Density

RESULT:

Pass

Test Specification

Test standard : FCC Part 15.407 (a)
RSS-247 clause 6.2
Basic standard : ANSI C63.10: 2013
Limits : <30dBm/500KHz (5725-5850MHz)
Kind of test site : Shielded Room

Test Setup

Date of testing : 2024-01-10 - 2024-02-29
Input voltage : DC 14V
Operation mode : A
Test channel : Low / Middle / High
Ambient temperature : 25.2 °C
Relative humidity : 37 %
Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix A.

Prüfbericht - Nr.: JP23VU3C 003
Test Report No.:

Seite 17 von 21
Page 17 of 21

5.1.4 Frequency Stability

RESULT:

Pass

Test Specification

Test standard : FCC Part 15.407 (g)
RSS-Gen Clause 6.11
Basic standard : ANSI C63.10: 2013
Limits : Within assigned bands
Kind of test site : Shielded Room

Test Setup

Date of testing : 2024-01-10 - 2024-02-29
Input voltage : DC 14V
Operation mode : A
Test channel : Low / Middle / High
Ambient temperature : 25.2 °C
Relative humidity : 37 %
Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix A.

Prüfbericht - Nr.: **JP23VU3C 003**
Test Report No.:Seite 18 von 21
Page 18 of 21

5.1.5 6dB Bandwidth

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

Test standard : FCC Part 15.407 (e)
RSS-247 clause 6.2.4.1

Basic standard : ANSI C63.10: 2013

Limits : At least 500KHz (5725-5850MHz)

Kind of test site : Shielded Room

Test Setup

Date of testing : 2024-01-10 - 2024-02-29

Input voltage : DC 14V

Operation mode : A

Test channel : Low / Middle / High

Ambient temperature : 25.2 °C

Relative humidity : 37 %

Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix A

Prüfbericht - Nr.: JP23VU3C 003
Test Report No.:

Seite 19 von 21
Page 19 of 21

5.1.6 99% Bandwidth

RESULT:

Pass

Test Specification

Test standard : FCC Part 15.407
RSS-Gen Clause 6.6
Basic standard : ANSI C63.10: 2013
Kind of test site : Shielded Room

Test Setup

Date of testing : 2024-01-10 - 2024-02-29
Input voltage : DC 14V
Operation mode : A
Test channel : Low / Middle / High
Ambient temperature : 25.2 °C
Relative humidity : 37 %
Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix A.

5.1.7 Radiated Spurious Emission

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

Test standard	: FCC Part 15.407(b) & FCC Part 15.205 & FCC Part 15.209 RSS-247 clause 6.2 & RSS-GEN clause 8.9 and 8.10
Basic standard	: ANSI C63.10: 2013 • For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge. • Restricted Bands meet the requirement of 15.209 limit • Restricted Bands meet the requirement of RSS-GEN
Limits	: edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
Kind of test site	: 3m Semi-anechoic Chamber

Test Setup

Date of testing	: 2024-01-10 - 2024-02-29
Input voltage	: DC 14V
Operation mode	: A
Test channel	: Low / Middle / High
Ambient temperature	: Refer to test result
Relative humidity	: Refer to test result
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 A.

6 Photographs of the Test Set-Up

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

7 List of Tables

Table 1: List of Test and Measurement Equipment.....	6
Table 2: Measurement Uncertainty	7
Table 3: Technical Specification of EUT.....	9
Table 4: RF Channel and Frequency of 5.8GHz Wi-Fi.....	10
Table 5: List of Accessories and Auxiliary Equipment.....	11
Table 6: Test Result of Maximum Conducted Output Power, 5.8GHz Wi-Fi.....	15

Appendix A: Test Results of 5.8GHz Wi-Fi

APPENDIX A: TEST RESULTS OF 5.8GHZ WI-FI.....	1
APPENDIX A.1: TEST RESULTS OF CONDUCTED POWER SPECTRAL DENSITY	2
APPENDIX A.2: TEST RESULTS OF 6dB BANDWIDTH	8
APPENDIX A.3: TEST RESULTS OF 99% BANDWIDTH.....	14
APPENDIX A.4: FREQUENCY STABILITY	20
APPENDIX A.5: TEST RESULTS OF RADIATED SPURIOUS EMISSIONS	21
30MHz - 1GHz (Worst case)	21
1GHz - 18GHz.....	23
APPENDIX A.6: TEST RESULTS OF RADIATED EMISSIONS IN RESTRICTED BANDS.....	27
Wi-Fi 802.11 a mode	27
Wi-Fi 802.11 N20 mode.....	31
Wi-Fi 802.11 N40 mode.....	35
Wi-Fi 802.11 AC80 mode.....	39
APPENDIX A.7: TEST RESULTS OF RADIATED SPURIOUS EMISSIONS-CO-LOCATION.....	43

Appendix A.1: Test Results of Conducted Power Spectral Density

TestMode	Antenna	Channel	Result [dBm/500KHz]	Limit[dBm/500KHz]	Verdict
11A	Ant1	5745	-4.00	≤30.00	PASS
		5785	-4.13	≤30.00	PASS
		5825	-3.97	≤30.00	PASS
11N20SISO	Ant1	5745	-5.23	≤30.00	PASS
		5785	-5.43	≤30.00	PASS
		5825	-5.10	≤30.00	PASS
11N40SISO	Ant1	5755	-7.74	≤30.00	PASS
		5795	-7.82	≤30.00	PASS
11AC20SISO	Ant1	5745	-5.18	≤30.00	PASS
		5785	-5.08	≤30.00	PASS
		5825	-5.20	≤30.00	PASS
11AC40SISO	Ant1	5755	-9.00	≤30.00	PASS
		5795	-8.99	≤30.00	PASS
11AC80SISO	Ant1	5775	-12.49	≤30.00	PASS

Note: 1.The Result and Limit Unit is dBm/500 kHz in the band 5.725–5.85 GHz.
2.The Duty Cycle Factor and RBW Factor is compensated in the graph.

11A Ant1 5745



11A Ant1 5785

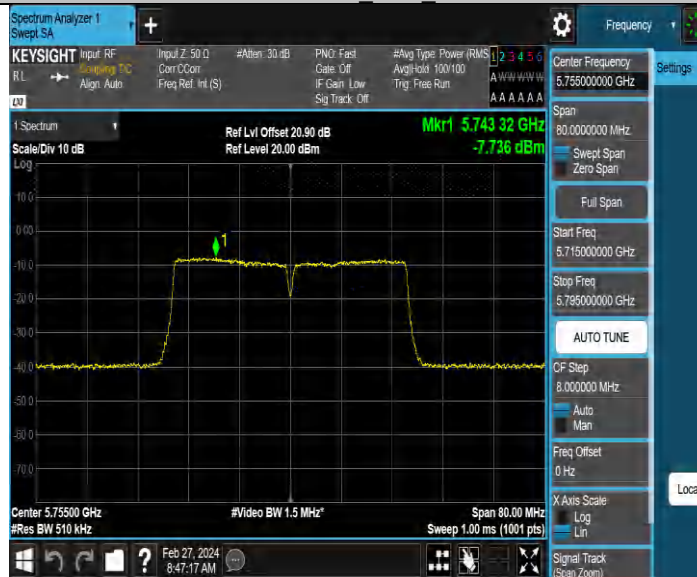


11A Ant1 5825

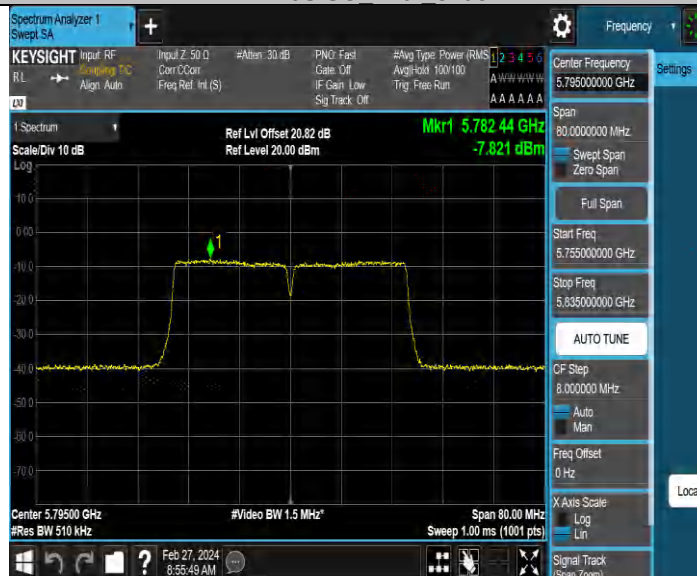




11N40SISO Ant1 5755



11N40SISO Ant1 5795



11AC20SISO Ant1 5745



11AC20SISO Ant1 5785



11AC20SISO Ant1 5825



11AC40SISO Ant1 5755





Appendix A.2: Test Results of 6dB Bandwidth

TestMode	Antenna	Channel	6db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5745	16.400	5736.760	5753.160	0.5	PASS
		5785	16.360	5776.800	5793.160	0.5	PASS
		5825	16.360	5816.800	5833.160	0.5	PASS
11N20SISO	Ant1	5745	17.600	5736.160	5753.760	0.5	PASS
		5785	17.600	5776.160	5793.760	0.5	PASS
		5825	17.600	5816.160	5833.760	0.5	PASS
11N40SISO	Ant1	5755	36.400	5736.760	5773.160	0.5	PASS
		5795	36.400	5776.760	5813.160	0.5	PASS
11AC20SISO	Ant1	5745	17.600	5736.160	5753.760	0.5	PASS
		5785	17.600	5776.160	5793.760	0.5	PASS
		5825	17.600	5816.160	5833.760	0.5	PASS
11AC40SISO	Ant1	5755	36.240	5736.840	5773.080	0.5	PASS
		5795	36.400	5776.760	5813.160	0.5	PASS
11AC80SISO	Ant1	5775	75.680	5737.080	5812.760	0.5	PASS

11A Ant1 5745



11A Ant1 5785



11A Ant1 5825



11N20SISO Ant1 5745



11N20SISO Ant1 5785



11N20SISO Ant1 5825



11N40SISO Ant1 5755



11N40SISO Ant1 5795



11AC20SISO Ant1 5745



11AC20SISO Ant1 5785



11AC20SISO Ant1 5825



11AC40SISO Ant1 5755



11AC40SISO_Ant1_5795



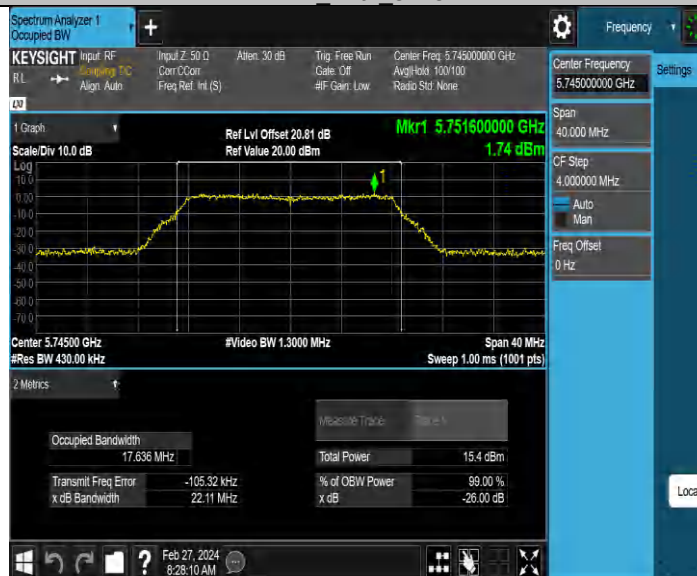
11AC80SISO_Ant1_5775



Appendix A.3: Test Results of 99% Bandwidth

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5745	17.636	5736.0767	5753.7127	---	---
		5785	17.483	5776.2047	5793.6877	---	---
		5825	17.601	5816.1523	5833.7533	---	---
11N20SISO	Ant1	5745	18.484	5735.6945	5754.1785	---	---
		5785	18.479	5775.7249	5794.2039	---	---
		5825	18.626	5815.6125	5834.2385	---	---
11N40SISO	Ant1	5755	36.803	5736.5106	5773.3136	---	---
		5795	36.726	5776.5979	5813.3239	---	---
11AC20SISO	Ant1	5745	18.542	5735.6807	5754.2227	---	---
		5785	18.467	5775.7149	5794.1819	---	---
		5825	18.601	5815.6668	5834.2678	---	---
11AC40SISO	Ant1	5755	36.785	5736.5771	5773.3621	---	---
		5795	36.756	5776.6177	5813.3737	---	---
11AC80SISO	Ant1	5775	76.581	5736.5616	5813.1426	---	---

11A Ant1 5745



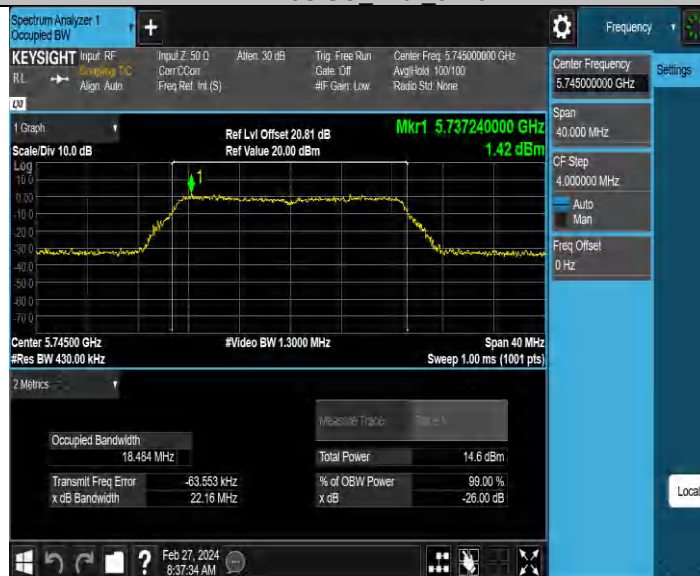
11A Ant1 5785



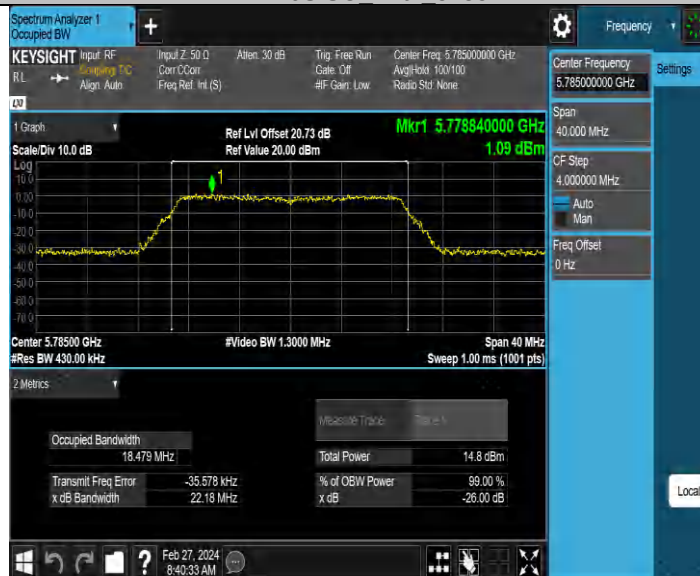
11A Ant1 5825



11N20SISO Ant1 5745



11N20SISO Ant1 5785



11N20SISO Ant1 5825









Appendix A.4: Frequency Stability

Voltage								
TestMode	Antenna	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11AC20SISO	Ant1	5745	NV	NT	-35000.00	-6.092254	20	PASS
		5785	NV	NT	-37000.00	-6.395851	20	PASS
		5825	NV	NT	-38000.00	-6.523605	20	PASS
11AC40SISO	Ant1	5755	NV	NT	-38000.00	-6.602954	20	PASS
		5795	NV	NT	-38000.00	-6.557377	20	PASS
11AC80SISO	Ant1	5775	NV	NT	-38000.00	-6.580087	20	PASS

Temperature								
TestMode	Antenna	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11AC20SISO	Ant1	5745	NV	0	-35000.00	-6.092254	20	PASS
			NV	40	-37000.00	-6.440383	20	PASS
		5785	NV	0	-38000.00	-6.568712	20	PASS
			NV	40	-38000.00	-6.568712	20	PASS
		5825	NV	0	-38000.00	-6.523605	20	PASS
			NV	40	-38000.00	-6.523605	20	PASS
11AC40SISO	Ant1	5755	NV	0	-38000.00	-6.602954	20	PASS
			NV	40	-38000.00	-6.602954	20	PASS
		5795	NV	0	-38000.00	-6.557377	20	PASS
			NV	40	-38000.00	-6.557377	20	PASS
11AC80SISO	Ant1	5775	NV	0	-37000.00	-6.406926	20	PASS
			NV	40	-38000.00	-6.580087	20	PASS

Appendix A.5: Test Results of Radiated Spurious Emissions

Note:

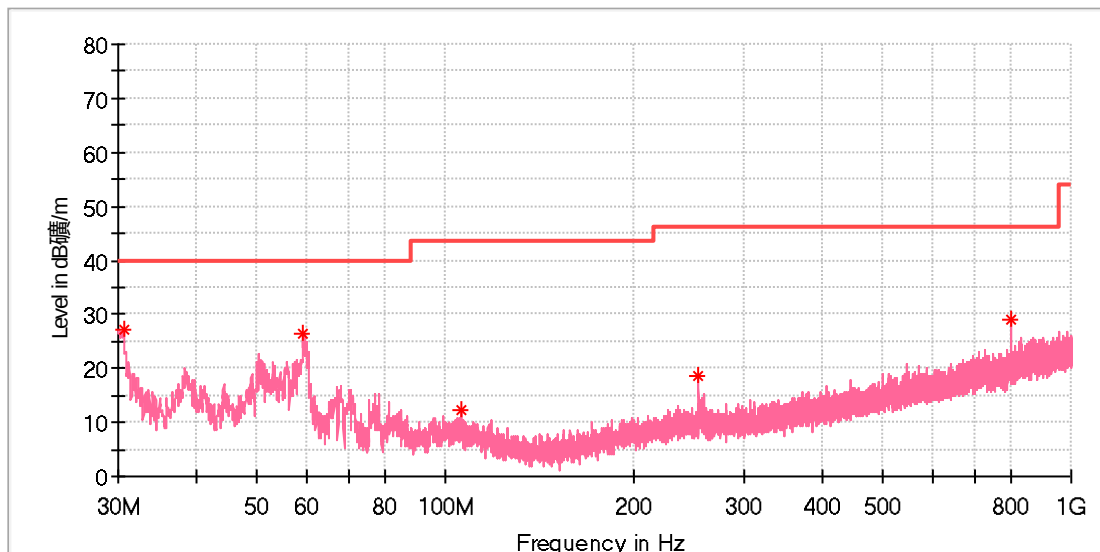
- 1) This testing was carried out on different modulations, but only the worst case was presented in this report.
- 2) Testing was carried out within frequency range 9kHz to the tenth harmonics. The measurement results below 30MHz and above 18GHz were greater than 20dB below the limit, so only the radiated spurious emissions from 30MHz to 18GHz were reported.

30MHz - 1GHz (Worst case)

Test Report

EUT Information

EUT Name:	Car Audio
Model:	P2301
Test Mode:	WIFI 5G_11a_Ch157
Order No/Sample No:	168457367/A003635657-002
Test Voltage::	DC 14V From DC Source
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.407
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)
30.559615	27.13	40.00	12.87	100.0	V	112.0	-23.2
59.361154	26.41	40.00	13.59	100.0	V	65.0	-19.2
106.256923	12.26	43.50	31.24	100.0	V	105.0	-19.2
254.181923	18.45	46.00	27.55	100.0	V	15.0	-17.6
800.030769	29.04	46.00	16.96	100.0	V	7.0	-6.8

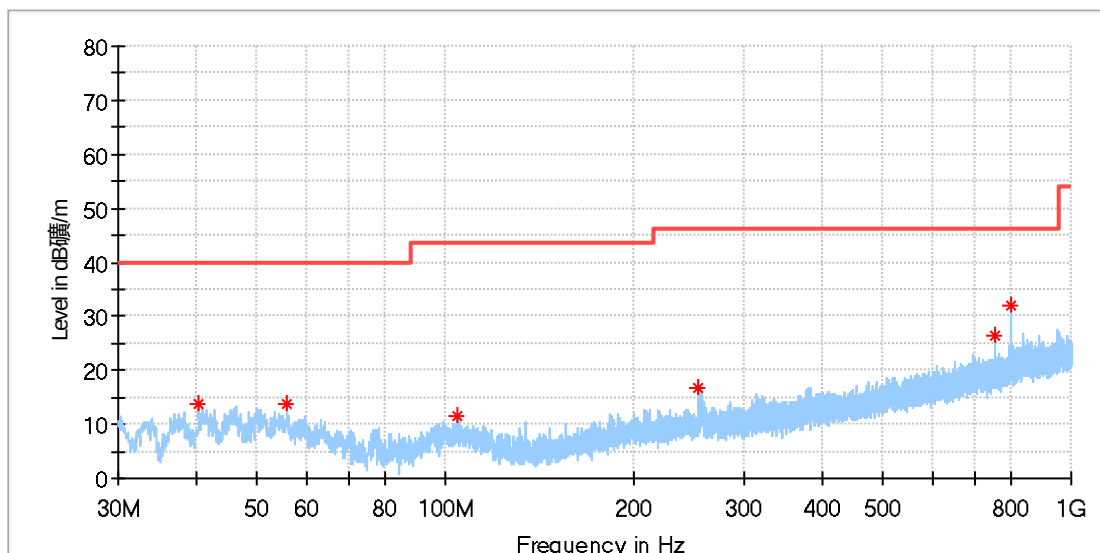
Final Result

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

Test Report

EUT Information

EUT Name:	Car Audio
Model:	P2301
Test Mode:	WIFI 5G_11a_Ch157
Order No/Sample No:	168457367/A003635657-002
Test Voltage::	DC 14V From DC Source
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.407
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)
40.408846	13.88	40.00	26.12	100.0	H	211.0	-20.3
55.891539	13.89	40.00	26.11	100.0	H	72.0	-18.8
104.316923	11.61	43.50	31.89	100.0	H	268.0	-19.1
254.256539	16.70	46.00	29.30	100.0	H	309.0	-17.6
754.328846	26.43	46.00	19.57	100.0	H	48.0	-7.5
800.030769	31.88	46.00	14.12	100.0	H	127.0	-6.8

Final Result

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

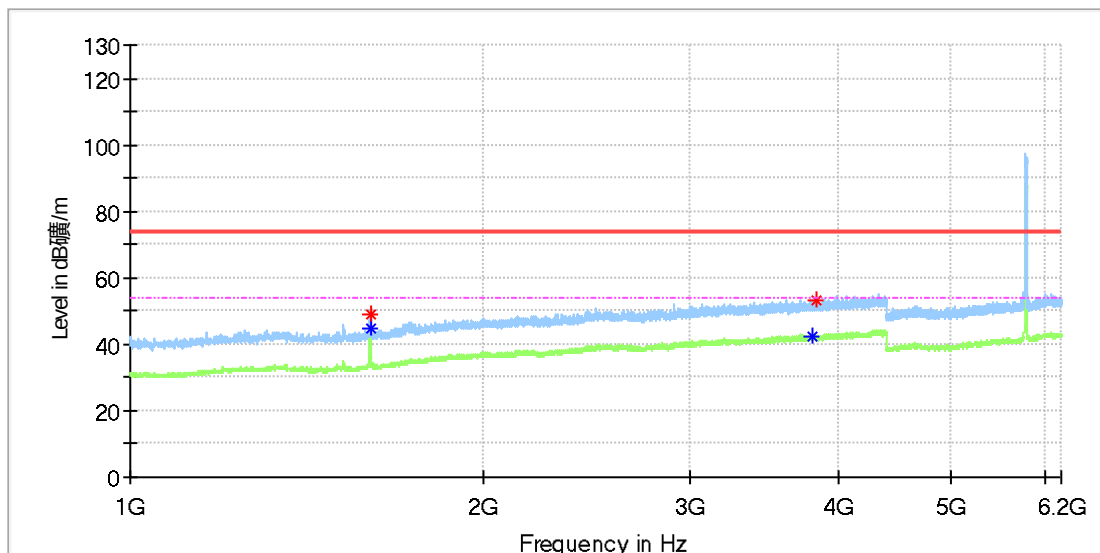
1GHz - 18GHz

Note: The highest waveform in the figure is Wi-Fi Fundamental. The worst case 802.11a mode were shown here.

Test Report

EUT Information

EUT Name:	Car Audio
Model:	P2301
Test Mode:	WIFI 5G_11a_Ch157
Order No/Sample No:	168457367/A003635657-002
Test Voltage::	DC 14V From DC Source
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.407
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)
1600.000000	49.04	---	74.00	24.96	150.0	H	39.0	2.1
1600.000000	---	44.58	54.00	9.42	150.0	H	39.0	2.1
3803.000000	---	42.58	54.00	11.42	150.0	H	305.0	9.8
3835.500000	52.99	---	74.00	21.01	150.0	H	290.0	9.9

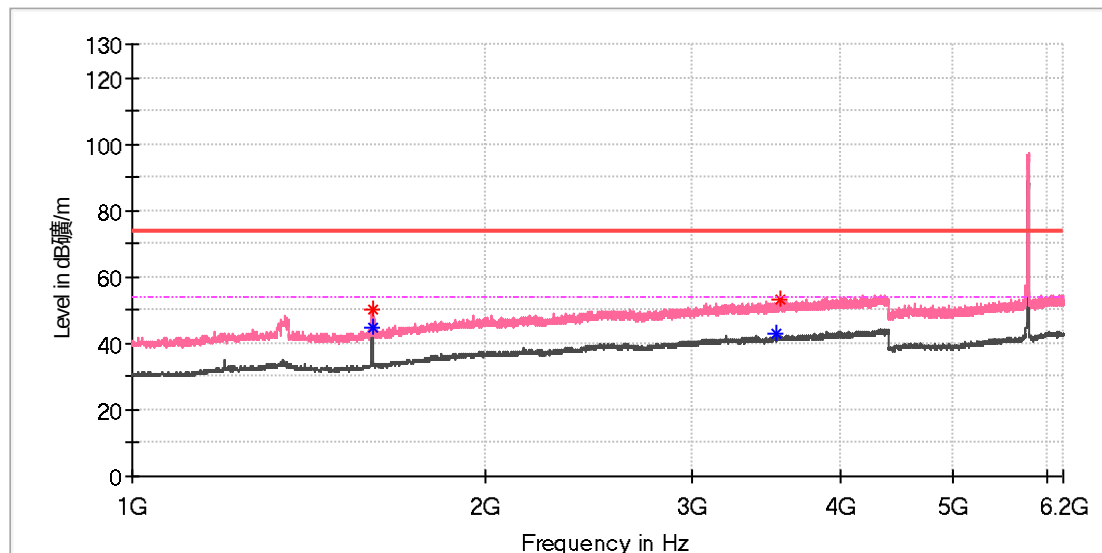
Final_Result

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

Test Report

EUT Information

EUT Name: Car Audio
Model: P2301
Test Mode: WIFI 5G_11a_Ch157
Order No/Sample No: 168457367/A003635657-002
Test Voltage:: DC 14V From DC Source
Remark: Temp 23 Humi:56%
Test Standard: FCC 15.407
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)
1600.000000	50.24	---	74.00	23.76	150.0	V	174.0	2.1
1600.000000	---	44.71	54.00	9.29	150.0	V	174.0	2.1
3534.500000	---	42.69	54.00	11.31	150.0	V	340.0	9.1
3555.500000	53.40	---	74.00	20.60	150.0	V	351.0	9.2

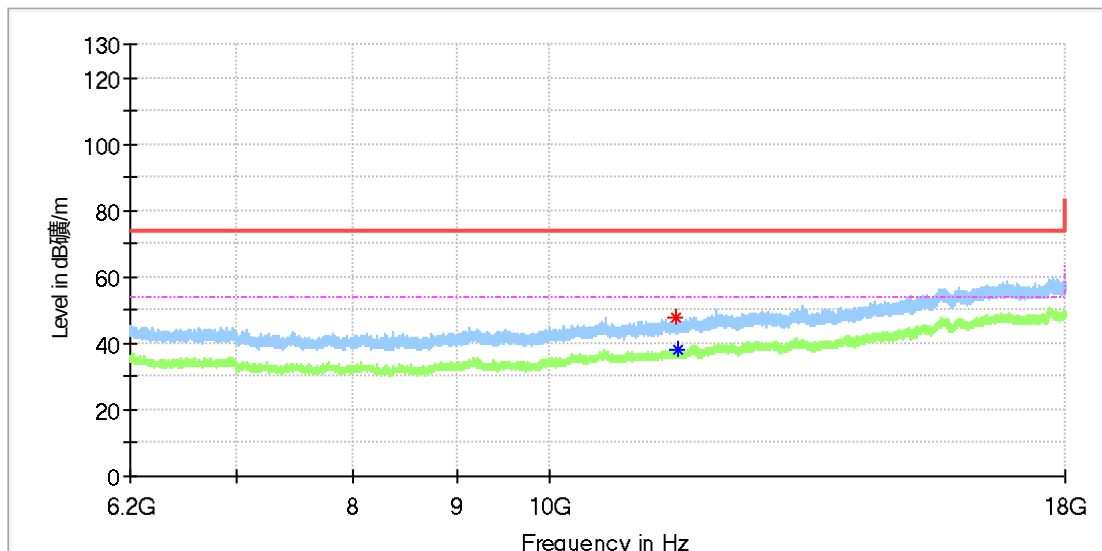
Final Result

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

Test Report

EUT Information

EUT Name:	Car Audio
Model:	P2301
Test Mode:	WIFI 5G_11a_Ch157
Order No/Sample No:	168457367/A003635657-002
Test Voltage::	DC 14V From DC Source
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.407
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)
11561.133333	47.60	---	74.00	26.40	150.0	H	272.0	13.4
11574.408333	---	37.96	54.00	16.04	150.0	H	153.0	13.4

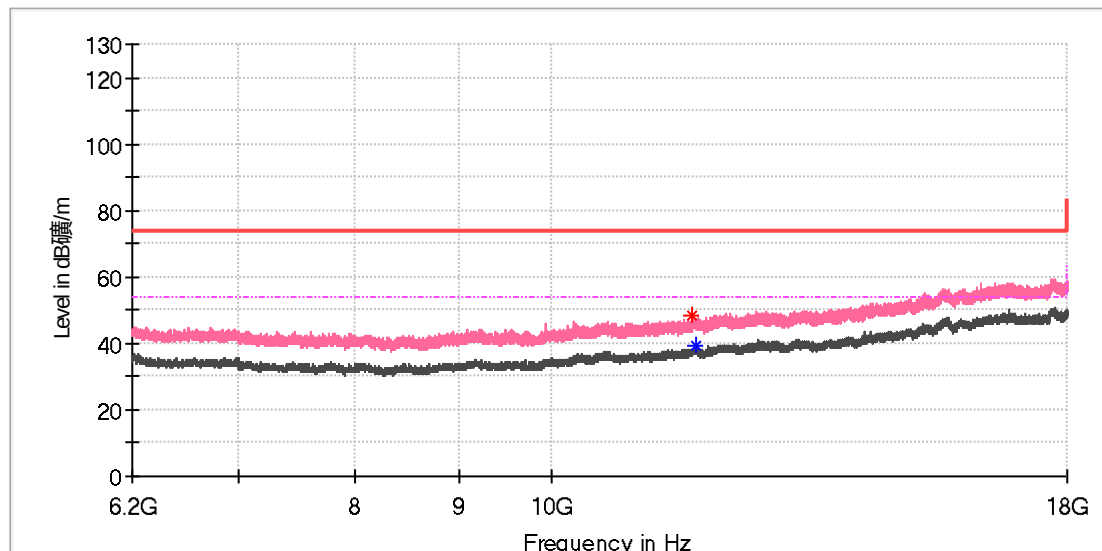
Final Result

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

Test Report

EUT Information

EUT Name:	Car Audio
Model:	P2301
Test Mode:	WIFI 5G_11a_Ch157
Order No/Sample No:	168457367/A003635657-002
Test Voltage::	DC 14V From DC Source
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.407
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)
11732.233333	48.29	---	74.00	25.71	150.0	V	187.0	13.3
11784.841667	---	39.57	54.00	14.43	150.0	V	100.0	13.4

Final Result

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

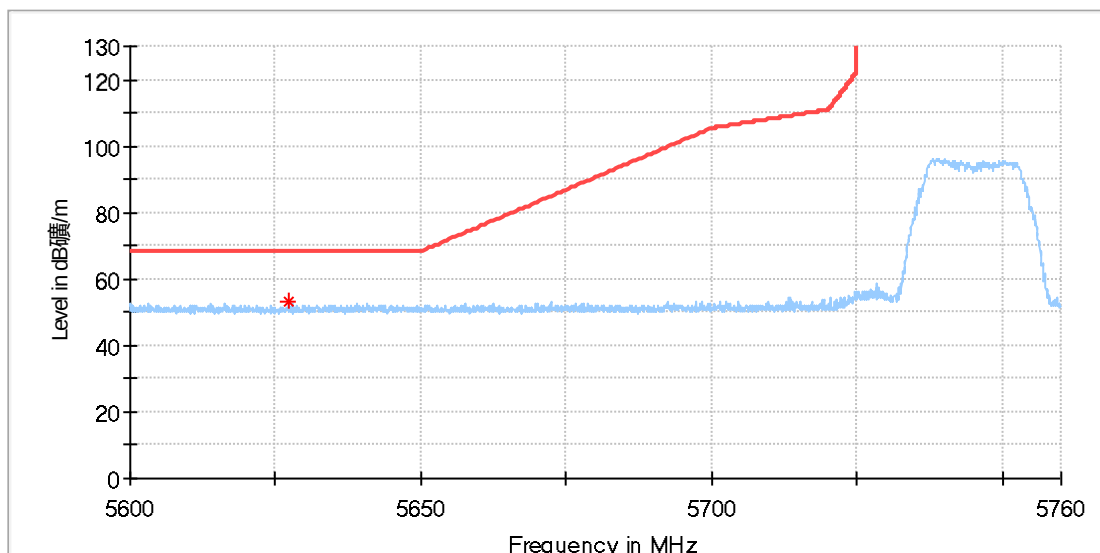
Appendix A.6: Test Results of Radiated Emissions in Restricted Bands

Wi-Fi 802.11 a mode

Test Report

EUT Information

EUT Name:	Car Audio
Model:	P2301
Test Mode:	WIFI 5G_11a_Ch149
Order No/Sample No:	168457367/A003635657-002
Test Voltage::	DC 14V From DC Source
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.407
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)
5627.255556	53.05	68.20	15.15	150.0	H	0.0	13.8

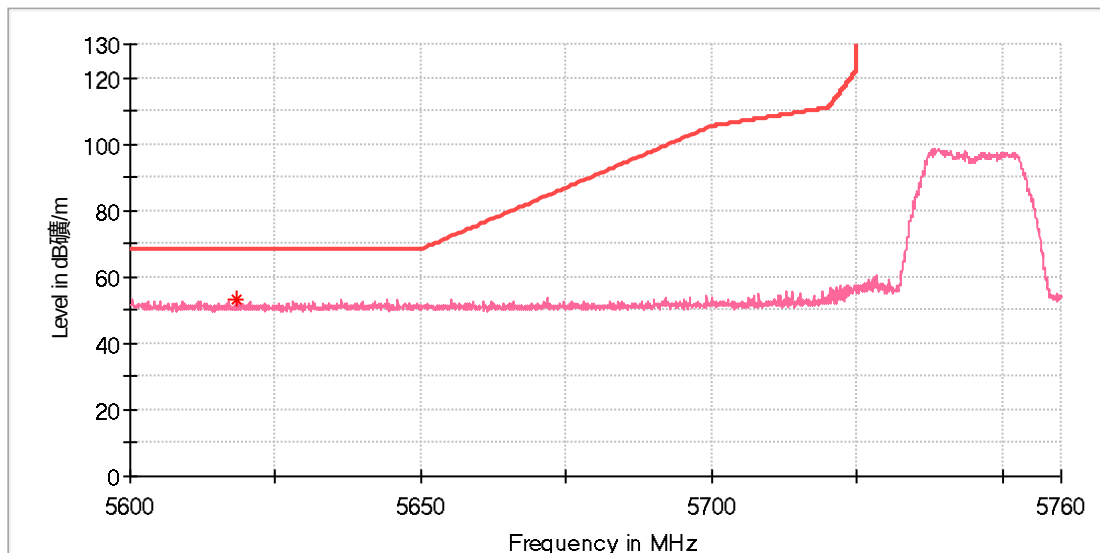
Final Result

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

Test Report

EUT Information

EUT Name:	Car Audio
Model:	P2301
Test Mode:	WIFI 5G_11a_Ch149
Order No/Sample No:	168457367/A003635657-002
Test Voltage::	DC 14V From DC Source
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.407
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)
5618.272222	53.38	68.20	14.82	150.0	V	351.0	13.8

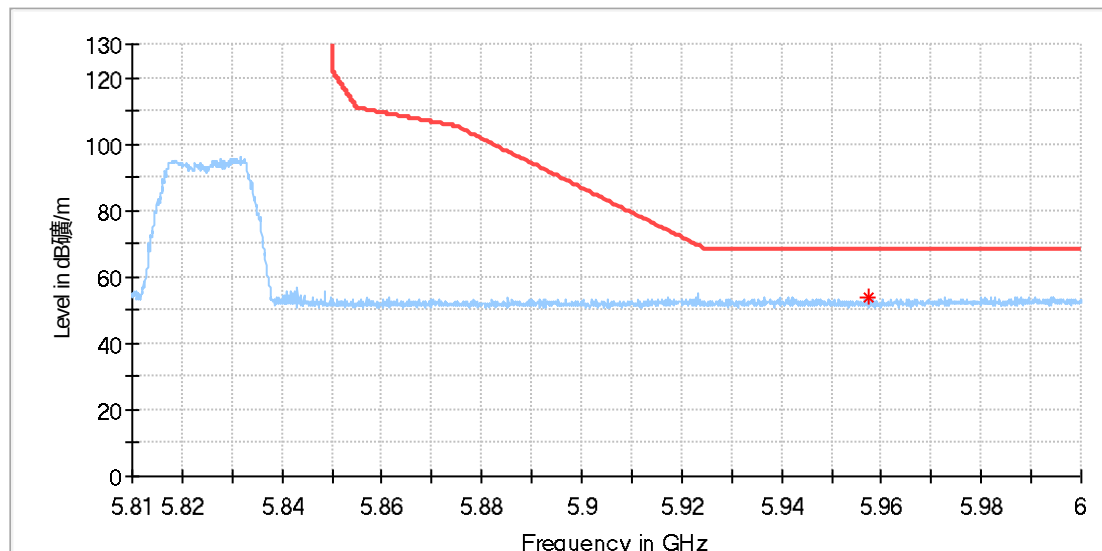
Final Result

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

Test Report

EUT Information

EUT Name:	Car Audio
Model:	P2301
Test Mode:	WIFI 5G_11a_Ch165
Order No/Sample No:	168457367/A003635657-002
Test Voltage::	DC 14V From DC Source
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.407
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)
5957.527778	54.03	68.20	14.17	150.0	H	264.0	14.8

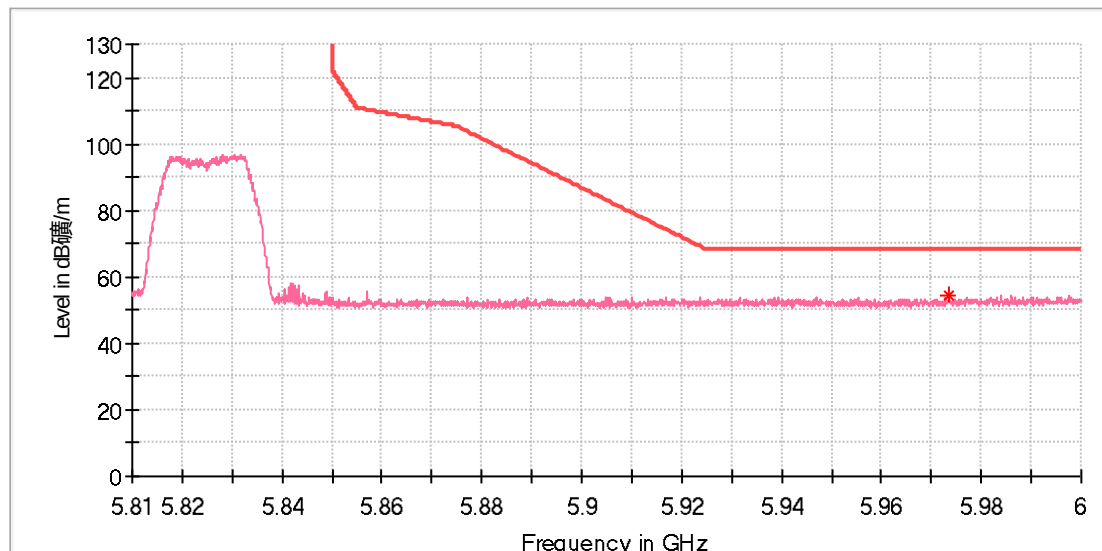
Final Result

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

Test Report

EUT Information

EUT Name:	Car Audio
Model:	P2301
Test Mode:	WIFI 5G_11a_Ch165
Order No/Sample No:	168457367/A003635657-002
Test Voltage::	DC 14V From DC Source
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.407
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)
5973.493056	54.45	68.20	13.75	150.0	V	181.0	14.9

Final Result

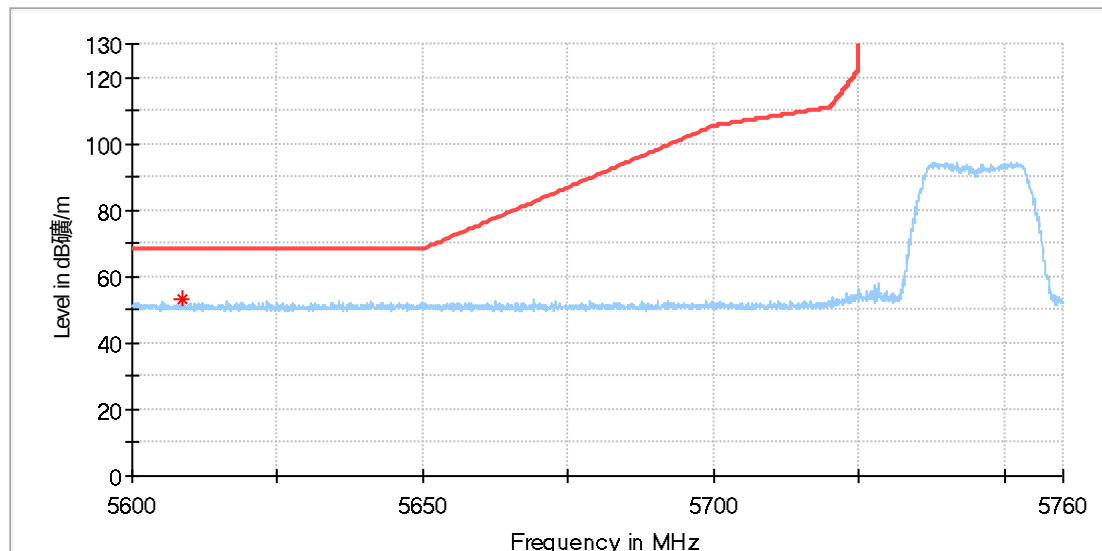
Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

Wi-Fi 802.11 N20 mode

Test Report

EUT Information

EUT Name:	Car Audio
Model:	P2301
Test Mode:	WIFI 5G_11n20_Ch149
Order No/Sample No:	168457367/A003635657-002
Test Voltage::	DC 14V From DC Source
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.407
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)
5608.494445	53.13	68.20	15.07	150.0	H	180.0	13.8

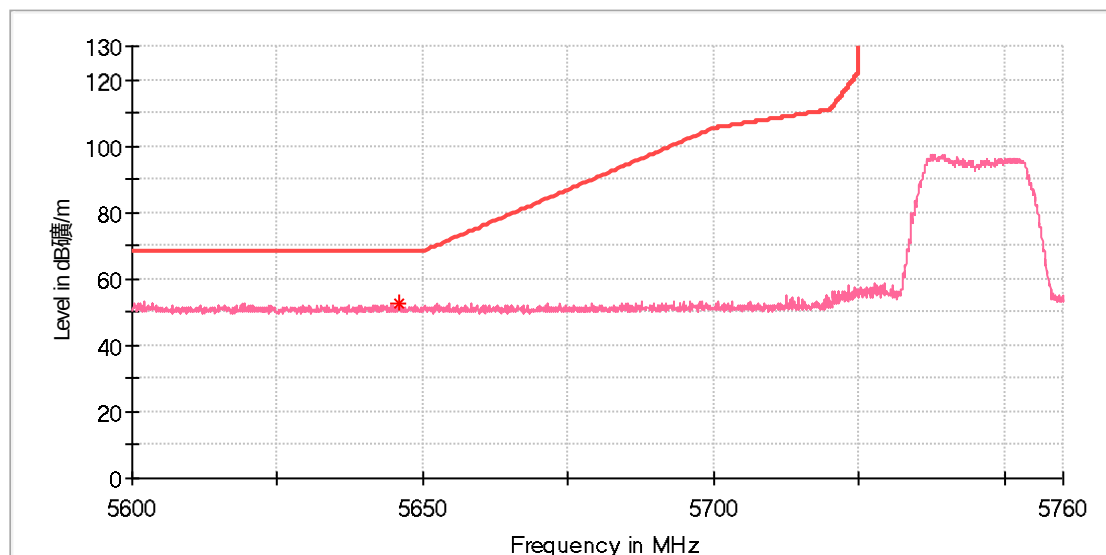
Final Result

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

Test Report

EUT Information

EUT Name:	Car Audio
Model:	P2301
Test Mode:	WIFI 5G_11n20_Ch149
Order No/Sample No:	168457367/A003635657-002
Test Voltage::	DC 14V From DC Source
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.407
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)
5646.016667	52.74	68.20	15.46	150.0	V	176.0	13.8

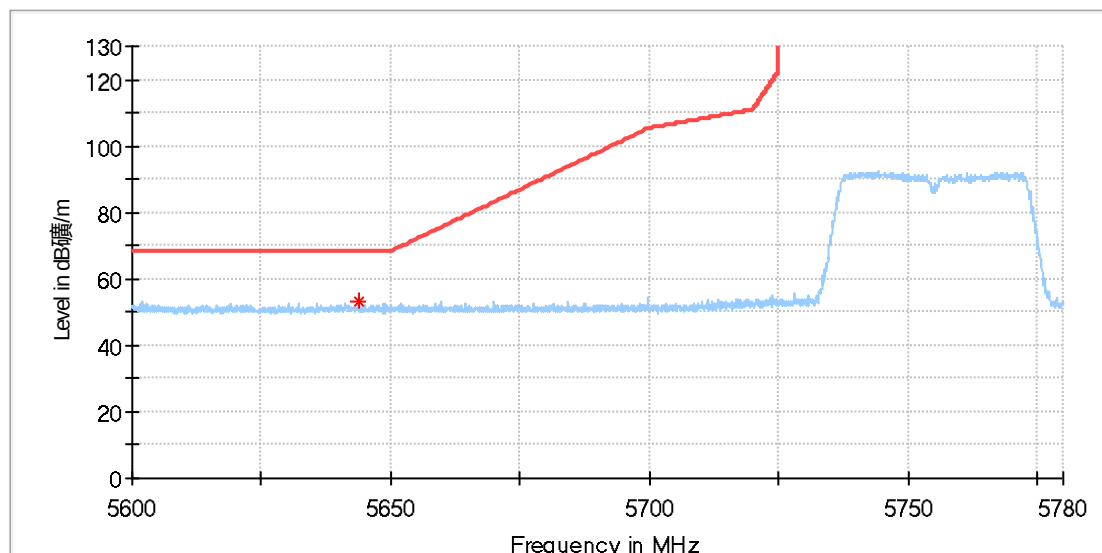
Final Result

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

Test Report

EUT Information

EUT Name:	Car Audio
Model:	P2301
Test Mode:	WIFI 5G_11n40_Ch151
Order No/Sample No:	168457367/A003635657-002
Test Voltage::	DC 14V From DC Source
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.407
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)
5643.816667	53.13	68.20	15.07	150.0	H	247.0	13.8

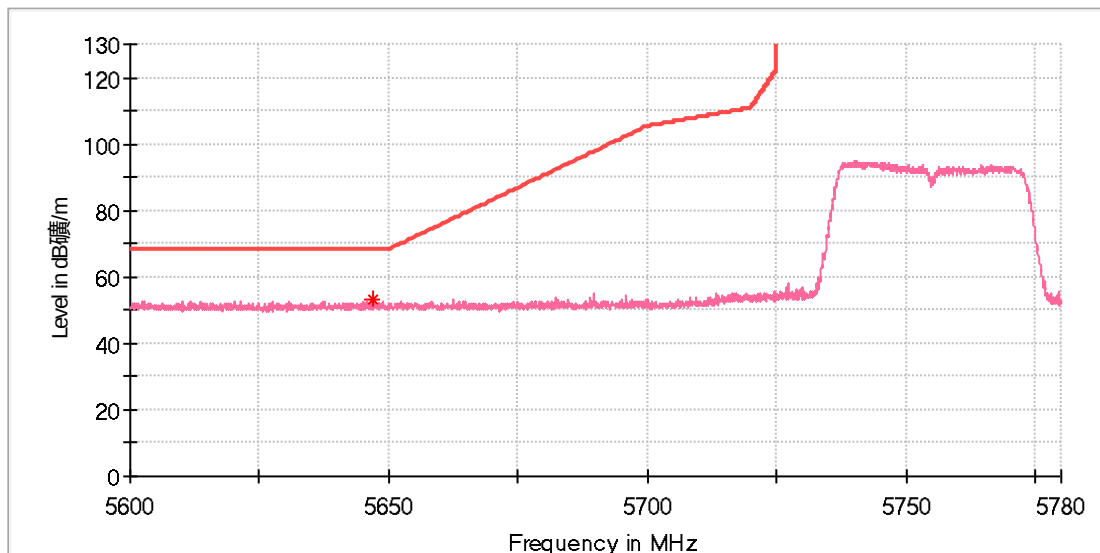
Final Result

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

Test Report

EUT Information

EUT Name:	Car Audio
Model:	P2301
Test Mode:	WIFI 5G_11n40_Ch151
Order No/Sample No:	168457367/A003635657-002
Test Voltage::	DC 14V From DC Source
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.407
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)
5647.116667	53.33	68.20	14.87	150.0	V	22.0	13.8

Final Result

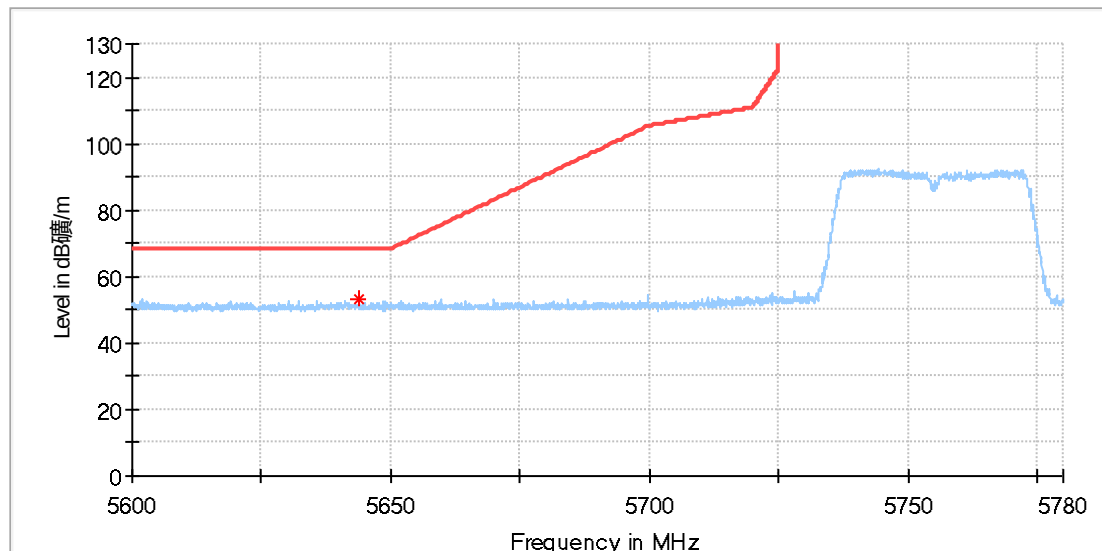
Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

Wi-Fi 802.11 N40 mode

Test Report

EUT Information

EUT Name:	Car Audio
Model:	P2301
Test Mode:	WIFI 5G_11n40_Ch151
Order No/Sample No:	168457367/A003635657-002
Test Voltage::	DC 14V From DC Source
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.407
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)
5643.816667	53.13	68.20	15.07	150.0	H	247.0	13.8

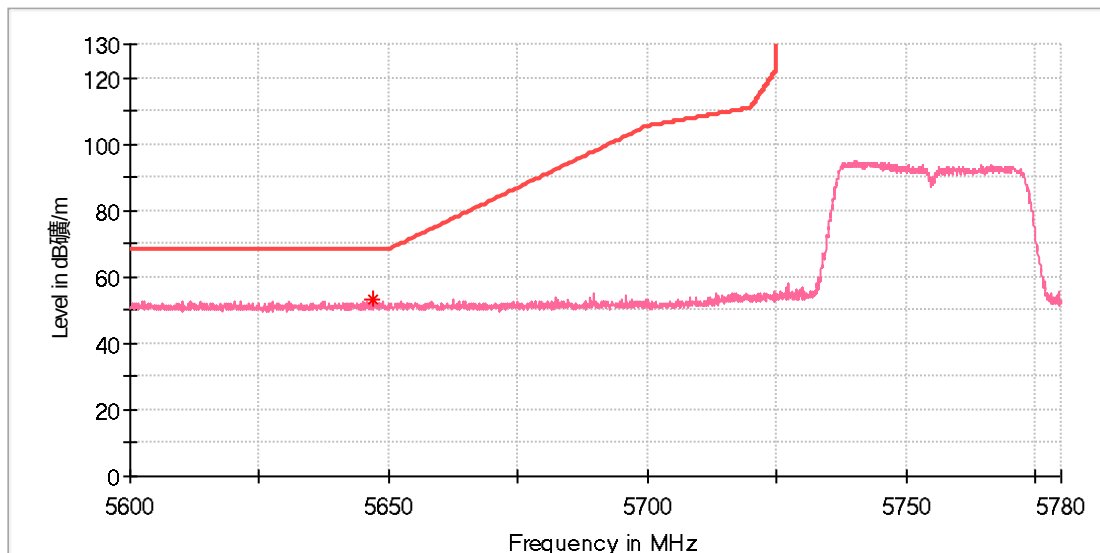
Final Result

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

EUT Information

EUT Name:	Car Audio
Model:	P2301
Test Mode:	WIFI 5G_11n40_Ch151
Order No/Sample No:	168457367/A003635657-002
Test Voltage::	DC 14V From DC Source
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.407
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)
5647.116667	53.33	68.20	14.87	150.0	V	22.0	13.8

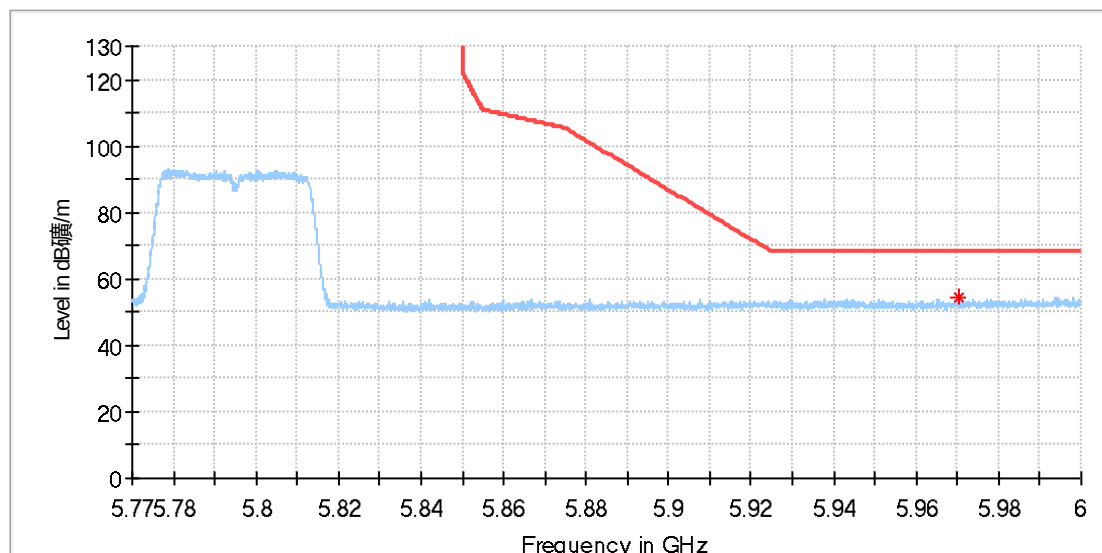
Final Result

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

EUT Information

EUT Name:	Car Audio
Model:	P2301
Test Mode:	WIFI 5G_11n40_Ch159
Order No/Sample No:	168457367/A003635657-002
Test Voltage::	DC 14V From DC Source
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.407
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)
5970.361111	54.40	68.20	13.80	150.0	H	204.0	14.9

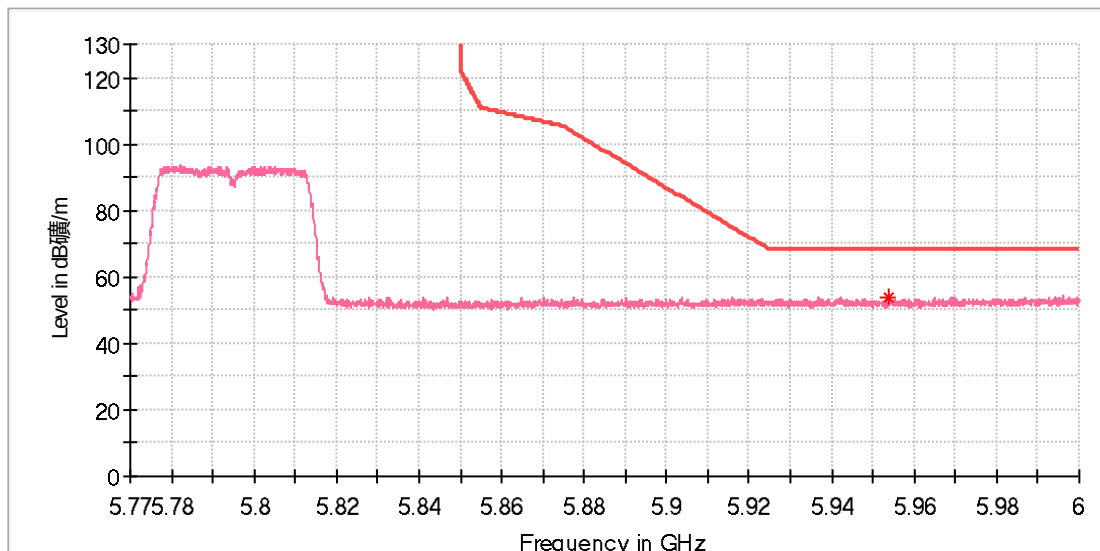
Final Result

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

Test Report

EUT Information

EUT Name:	Car Audio
Model:	P2301
Test Mode:	WIFI 5G_11n40_Ch159
Order No/Sample No:	168457367/A003635657-002
Test Voltage::	DC 14V From DC Source
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.407
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)
5953.631945	54.05	68.20	14.15	150.0	V	0.0	14.8

Final Result

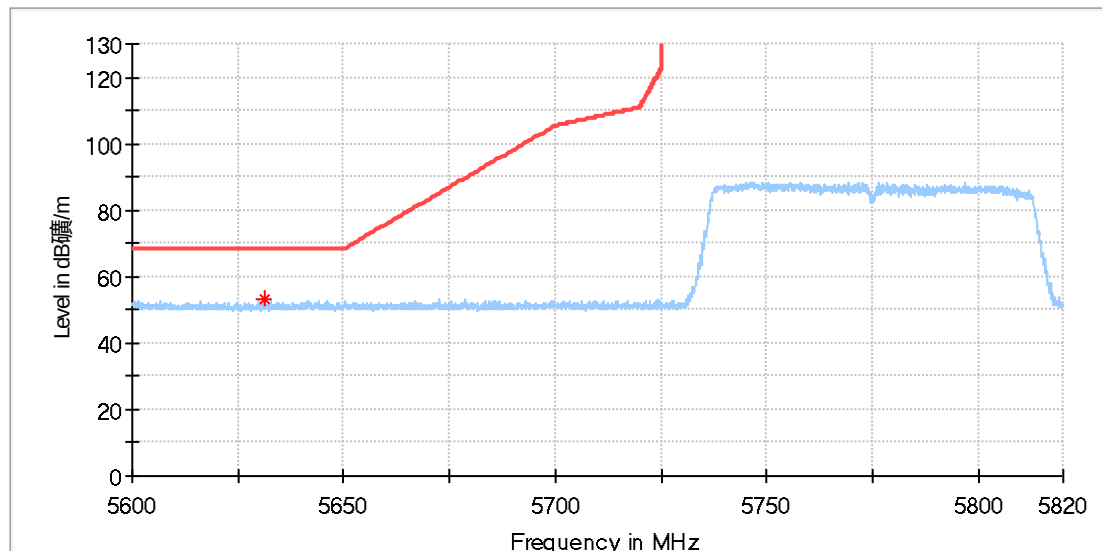
Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
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Wi-Fi 802.11 AC80 mode

Test Report

EUT Information

EUT Name:	Car Audio
Model:	P2301
Test Mode:	WIFI 5G_11ac80_Ch155
Order No/Sample No:	168457367/A003635657-002
Test Voltage::	DC 14V From DC Source
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.407
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)
5631.105556	53.42	68.20	14.78	150.0	H	306.0	13.8

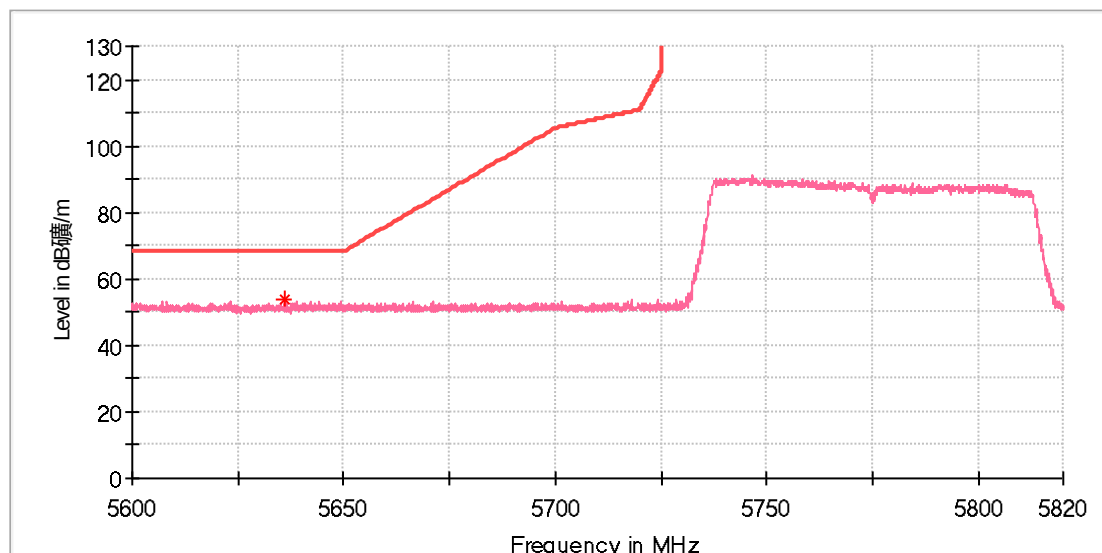
Final Result

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

EUT Information

EUT Name:	Car Audio
Model:	P2301
Test Mode:	WIFI 5G_11ac80_Ch155
Order No/Sample No:	168457367/A003635657-002
Test Voltage::	DC 14V From DC Source
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.407
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)
5636.177778	53.54	68.20	14.67	150.0	V	126.0	13.8

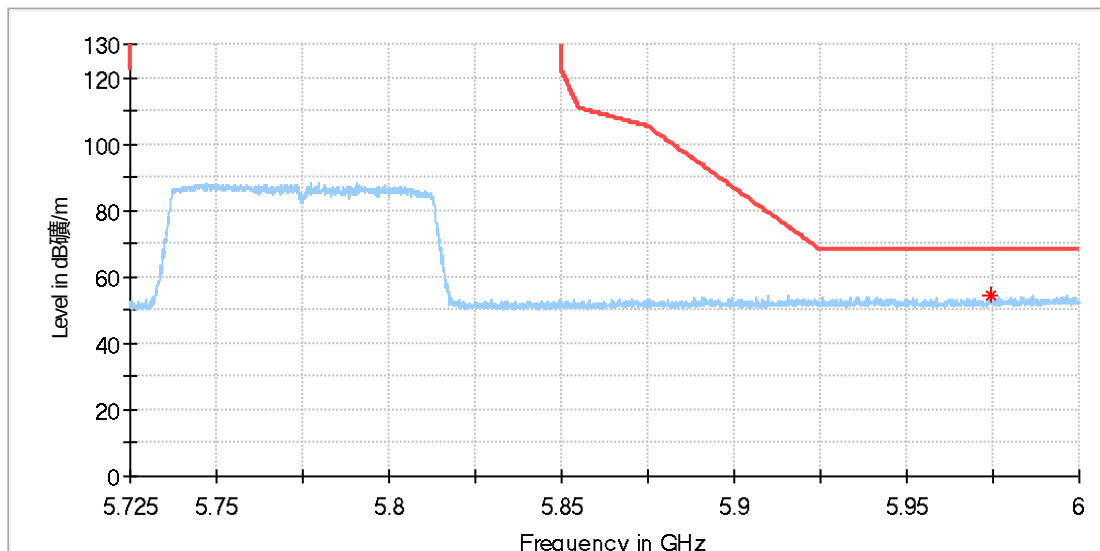
Final Result

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

Test Report

EUT Information

EUT Name:	Car Audio
Model:	P2301
Test Mode:	WIFI 5G_11ac80_Ch155
Order No/Sample No:	168457367/A003635657-002
Test Voltage::	DC 14V From DC Source
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.407
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)
5974.409722	54.22	68.20	13.98	150.0	H	287.0	14.9

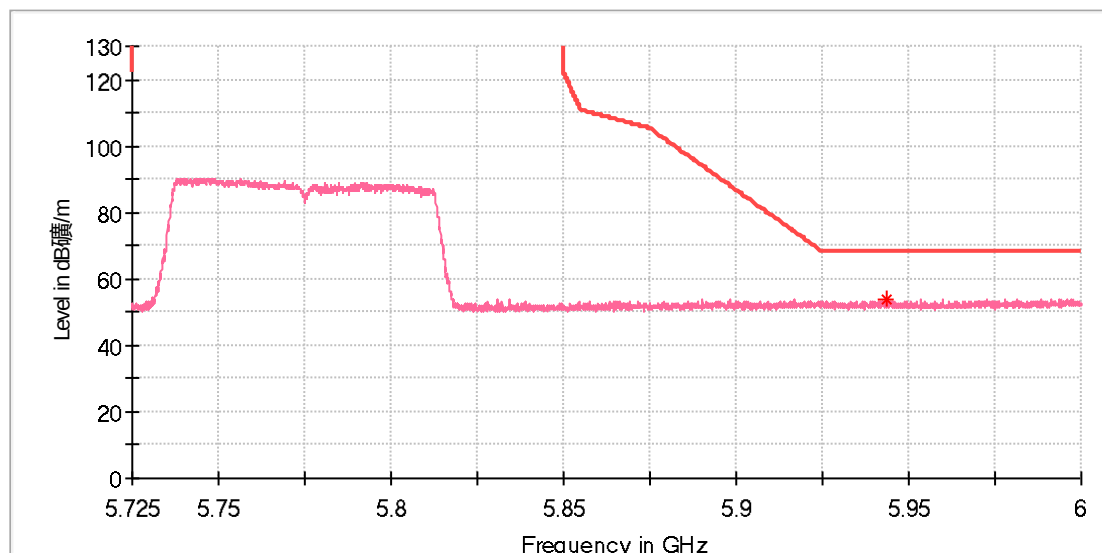
Final Result

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

Test Report

EUT Information

EUT Name:	Car Audio
Model:	P2301
Test Mode:	WIFI 5G_11ac80_Ch155
Order No/Sample No:	168457367/A003635657-002
Test Voltage::	DC 14V From DC Source
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.407
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)
5943.395833	54.04	68.20	14.16	150.0	V	0.0	14.7

Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
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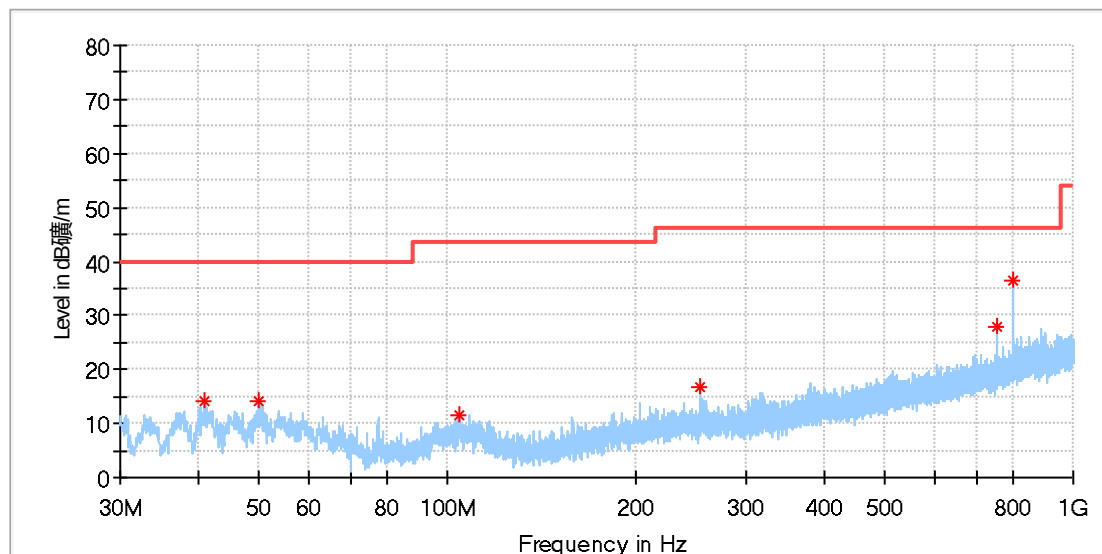
Appendix A.7: Test Results of Radiated Spurious Emissions-Co-location

Bluetooth+5.8G Wi-Fi- Co-locaiton test (worst case)
(Simultaneous transmission of Bluetooth and WLAN (either 2.4GHz or 5GHz) is possible.)

Test Report

EUT Information

EUT Name:	Car Audio
Model:	P2301
Test Mode:	BR_DH5_Low channel+WIFI 5G_11a_Ch157
Order No/Sample No:	168457367/A003635657-002
Test Voltage::	DC 14V From DC Source
Remark:	Temp 23 Humi:56%
Test Standard:	FCC Part 15C
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)
40.819231	14.16	40.00	25.84	100.0	H	114.0	-20.2
49.996923	14.32	40.00	25.68	100.0	H	1.0	-18.6
104.428846	11.70	43.50	31.80	100.0	H	187.0	-19.1
253.734231	16.88	46.00	29.12	100.0	H	339.0	-17.6
754.328846	27.76	46.00	18.24	100.0	H	218.0	-7.5
800.030769	36.32	46.00	9.68	100.0	H	218.0	-6.8

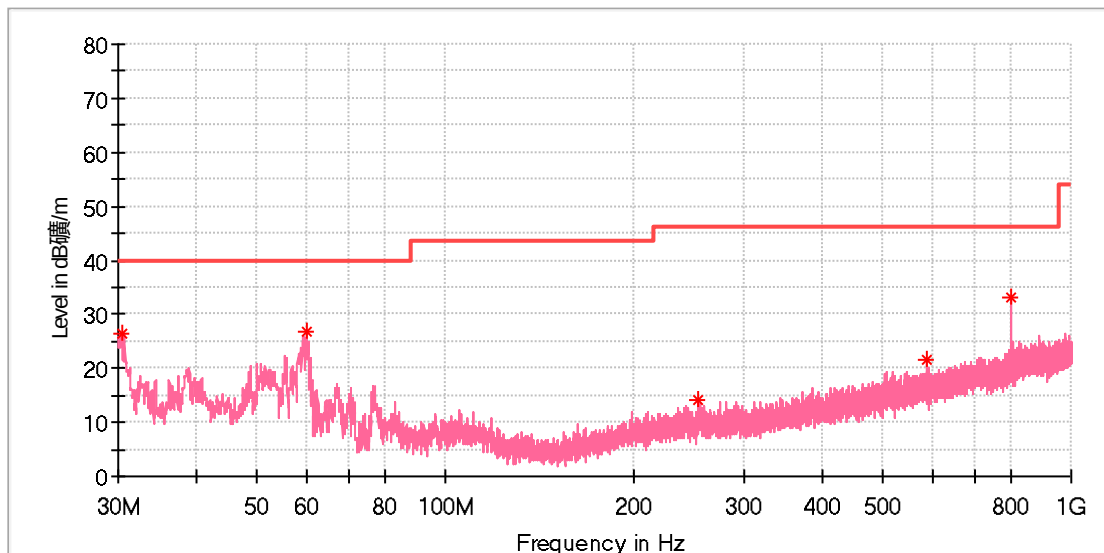
Final Result

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

EUT Information

EUT Name:	Car Audio
Model:	P2301
Test Mode:	BR_DH5_Low channel+WIFI 5G_11a_Ch157
Order No/Sample No:	168457367/A003635657-002
Test Voltage::	DC 14V From DC Source
Remark:	Temp 23 Humi:56%
Test Standard:	FCC Part 15C
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)
30.335769	26.39	40.00	13.61	100.0	V	347.0	-23.3
60.070000	26.88	40.00	13.12	100.0	V	300.0	-19.3
254.219231	14.18	46.00	31.82	100.0	V	0.0	-17.6
587.376923	21.47	46.00	24.53	100.0	V	110.0	-10.5
800.030769	33.00	46.00	13.00	100.0	V	0.0	-6.8

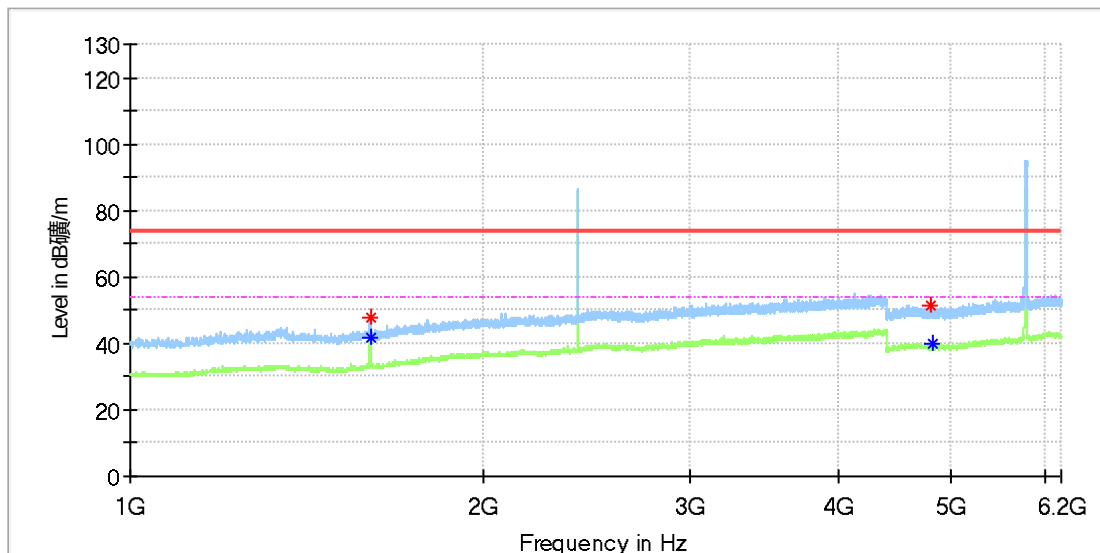
Final Result

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

Test Report

EUT Information

EUT Name:	Car Audio
Model:	P2301
Test Mode:	BR_DH5_Low channel+WIFI 5G_11a_Ch157
Order No/Sample No:	168457367/A003635657-002
Test Voltage::	DC 14V From DC Source
Remark:	Temp 23 Humi:56%
Test Standard:	FCC Part 15C
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)
1600.000000	48.01	---	74.00	25.99	150.0	H	24.0	2.1
1600.000000	---	41.78	54.00	12.22	150.0	H	24.0	2.1
4805.500000	51.43	---	74.00	22.57	150.0	H	0.0	11.8
4819.000000	---	39.80	54.00	14.20	150.0	H	199.0	11.8

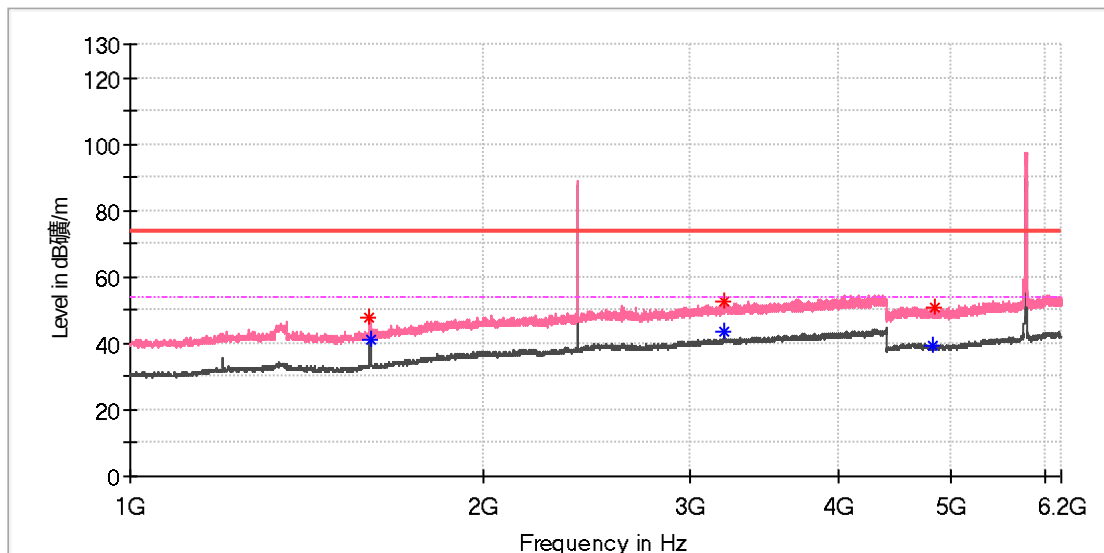
Final Result

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

Test Report

EUT Information

EUT Name:	Car Audio
Model:	P2301
Test Mode:	BR_DH5_Low channel+WIFI 5G_11a_Ch157
Order No/Sample No:	168457367/A003635657-002
Test Voltage::	DC 14V From DC Source
Remark:	Temp 23 Humi:56%
Test Standard:	FCC Part 15C
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)
1599.500000	47.67	---	74.00	26.33	150.0	V	178.0	2.1
1600.000000	---	41.25	54.00	12.75	150.0	V	178.0	2.1
3200.000000	---	43.41	54.00	10.59	150.0	V	321.0	8.6
3201.000000	52.44	---	74.00	21.56	150.0	V	209.0	8.6
4818.500000	---	39.21	54.00	14.79	150.0	V	185.0	11.8
4842.500000	50.70	---	74.00	23.30	150.0	V	210.0	11.8

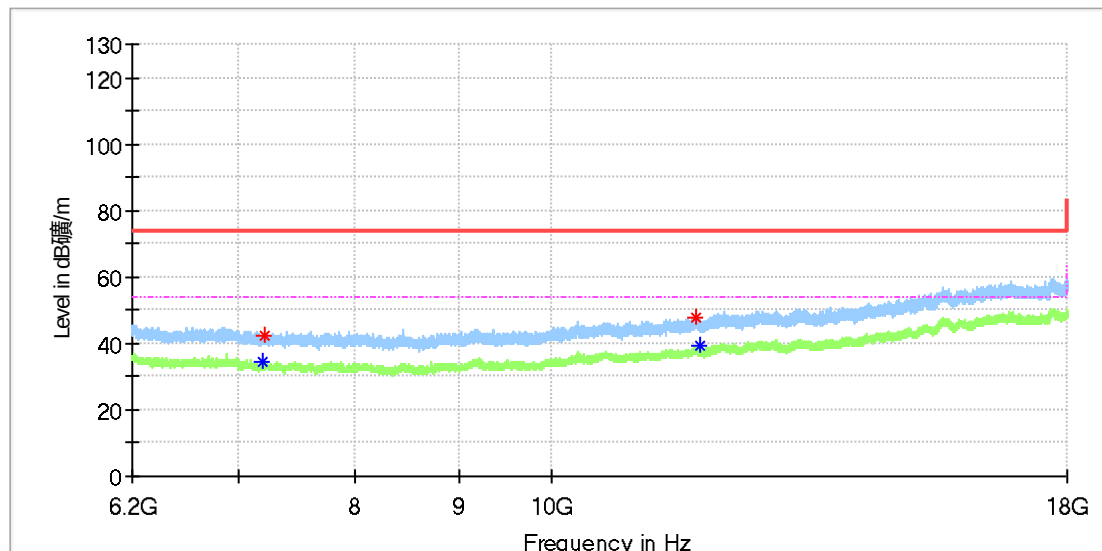
Final Result

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

EUT Information

EUT Name: Car Audio
Model: P2301
Test Mode: BR_DH5_Low channel+WIFI 5G_11a_Ch157
Order No/Sample No: 168457367/A003635657-002
Test Voltage:: DC 14V From DC Source
Remark: Temp 23 Humi:56%
Test Standard: FCC Part 15C
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)
7198.575000	---	34.25	54.00	19.75	150.0	H	3.0	8.8
7208.408333	42.47	---	74.00	31.53	150.0	H	121.0	8.8
11798.608333	47.74	---	74.00	26.26	150.0	H	156.0	13.4
11833.025000	---	39.29	54.00	14.71	150.0	H	228.0	13.5

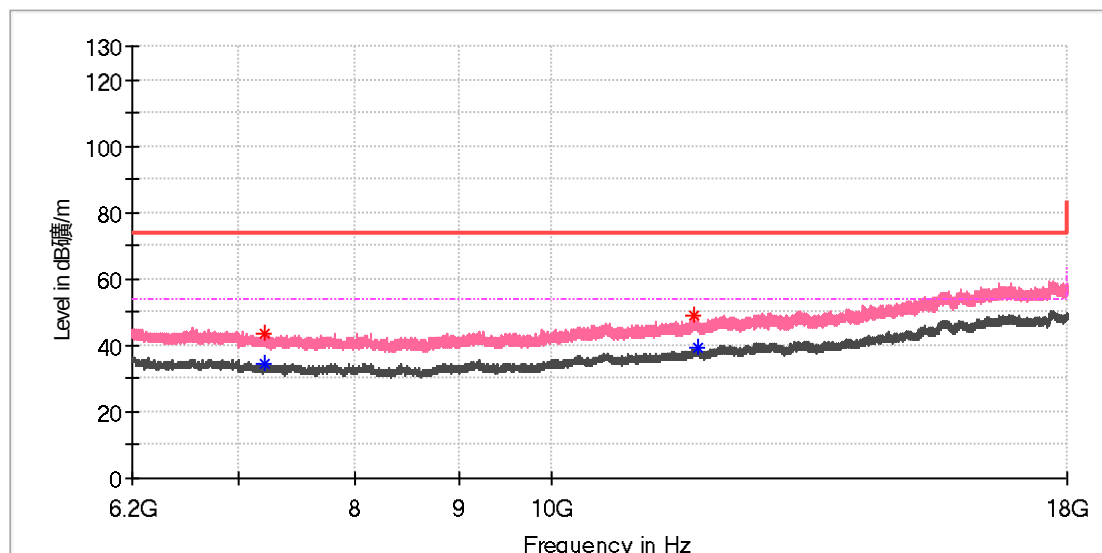
Final Result

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

Test Report

EUT Information

EUT Name: Car Audio
Model: P2301
Test Mode: BR_DH5_Low channel+WIFI 5G_11a_Ch157
Order No/Sample No: 168457367/A003635657-002
Test Voltage:: DC 14V From DC Source
Remark: Temp 23 Humi:56%
Test Standard: FCC Part 15C
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)
7213.816667	---	34.44	54.00	19.56	150.0	V	329.0	8.7
7214.308333	43.25	---	74.00	30.75	150.0	V	84.0	8.7
11762.225000	48.97	---	74.00	25.03	150.0	V	0.0	13.4
11805.491667	---	39.45	54.00	14.55	150.0	V	0.0	13.4

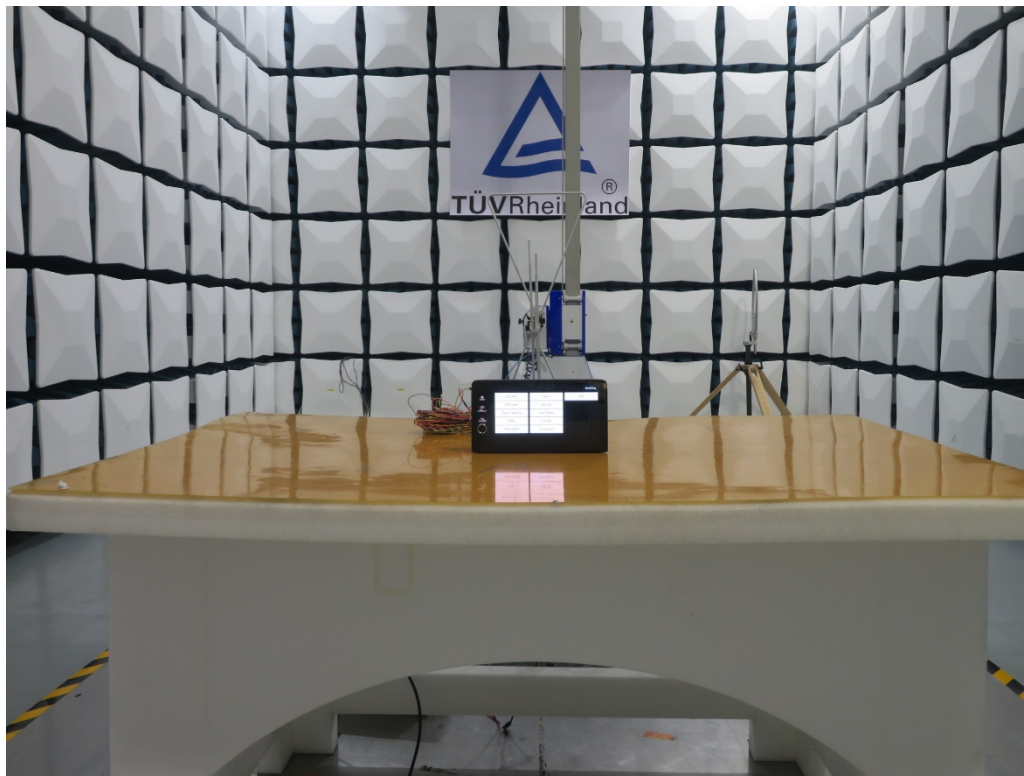
Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
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Appendix B: Photographs of the Test Set-Up

APPENDIX B: PHOTOGRAPHS OF THE TEST SET-UP	1
PHOTOGRAPH 1: SET-UP PHOTO FOR RADIATED SPURIOUS EMISSION, BELOW 1GHZ	2
PHOTOGRAPH 2: SET-UP PHOTO FOR RADIATED SPURIOUS EMISSION, ABOVE 1GHZ.....	2

Photograph 1: Set-up photo for Radiated Spurious Emission, below 1GHz



Photograph 2: Set-up photo for Radiated Spurious Emission, above 1GHz

