Prüfbericht-Nr.: *Test report no.*:	**CN24ASZG 002**	**Auftrags-Nr.:** *Order no.*:	168486939	Seite 1 von 18 *Page 1 of 18*
Kunden-Referenz-Nr.: *Client reference no.*:	N/A	**Auftragsdatum:** *Order date:*	2024-06-03	
Auftraggeber: *Client*:	Xiamen Hongfa Electroacoustic Co.,Ltd. No.91-101, Sunban South Rd., Jimei North Ind. Dist., Xiamen 361021, China			
Prüfgegenstand: *Test item*:	BCM			
Bezeichnung / Typ-Nr.: *Identification / Type no.*:	HF3758/12			
Auftrags-Inhalt: *Order content*:	Test Report			
Prüfgrundlage: *Test specification*:	FCC 47 CFR Part 15.201 FCC 47 CFR Part 15.209			

Wareneingangsdatum: *Date of sample receipt*:	2024-07-30	Please refer to Photo Document
Prüfmuster-Nr.: *Test sample no:*	HF3758/12-2407-EST002	
Prüfzeitraum: *Testing period*:	2024-09-24	
Ort der Prüfung: *Place of testing*:	EST Technology Co., Ltd.	
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland (Shenzhen) Co., Ltd.	
Prüfergebnis*: *Test result**:	Pass	

geprüft von: tested by:	X Lin Lin	**genehmigt von:** *authorized by*:	X Hardy Suo
Datum: *Date:*	2024-10-16	**Ausstellungsdatum:** *Issue date:*	2024-10-16
Stellung / Position:	Sachverständige(r)/Expert	**Stellung** / Position:	Sachverständige(r)/Expert

Sonstiges / *Other*: FCC ID: 2A9J4-3758B36434

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 115:2021, 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 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 115:2021, 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.*

Test Summary

5.1.1 RADIATED SPURIOUS EMISSIONS

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: Photographs of the Test Set-up.

2 Test Sites

2.1 Test Facilities

EST Technology Co., Ltd.

Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China

A2LA Certificate Number: 4366.01

FCC Accreditation Designation No.: CN1215

ISED Company Number: 9405A

Note: TÜV Rheinland (Shenzhen) Co., Ltd. Subcontracts all test to EST Technology Co., Ltd., The tests at the test sites have been conducted under the supervision of a TÜV engineer.

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

For radiated emission test (below 30MHz)

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESR3	EST-E049	June 11,2024	June 10,2025
Active Loop Antenna	SCHWARZBECK	FMZB1519B	EST-E054	June 11,2024	June 10,2025
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A

For radiated emission test (1# 966 radiation) (30MHz-1000MHz)

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESR3	EST-E049	June 11,2024	June 10,2025
Bilog Antenna	Teseq	CBL 6111D	EST-E053	June 11,2024	June 10,2025
Test Software	Audix	e3-6.111221a	N/A	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
Radiated Emission, below 30MHz	± 2.88 dB
Radiated Emission, 30MHz - 1000MHz	H: ± 4.26 dB V: ± 4.84 dB

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A 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 EST Technology Co., Ltd. Test facility located at Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

The TÜV Rheinland (Shenzhen) Co., Ltd. Test facility located at No.362, Huanguan Middle Road, Songyuansha Community, Guanhu Subdistrict, Longhua District, Shenzhen 518110, Guangdong, 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 BCM supports wireless 125kHz (transmitter only) and 433.92MHz (receiver only) for vehicle use.

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:	BCM
Type Designation:	HF3758/12
FCC ID:	2A9J4-3758B36434
Operating Voltage:	DC 12.0V
Operating Temperature Range:	-40°C ~ +85°C
Technical Specification of EUT	
Operating Frequency:	125kHz for Transmitting 433.92MHz for Receiving
Modulation:	ASK: 125kHz for Transmitting FSK: 433MHz for Receiving
Antenna Type:	Integral Antenna

3.3 Independent Operation Modes

The basic operation modes are:

A. On, Transmitting with operating frequency 125kHz

B. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- Application Form
- ID Label and Location Info
- User Manual
- 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 HF3758/12 in this report.

4.3 Special Accessories and Auxiliary Equipment

Table 4: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	Remark
BCM Function Tester	Hongfa	HFT501	/
Wiring harness	Hongfa	/	Connecting the BCM and BCM function tester
KEY FOB	Hongfa	HF3758R35434	It supports 433.92MHz for transmitting and 125kHz for Receiving, which Communicating with BCM via wireless functions during working.

4.4 Countermeasures to Achieve EMC Compliance

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

No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

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

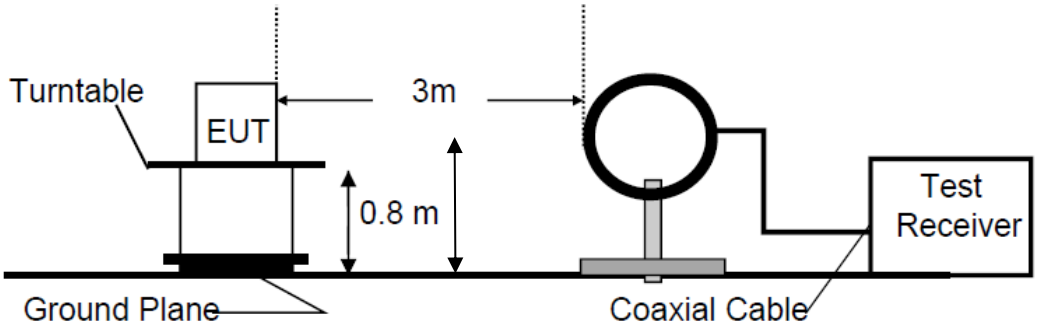
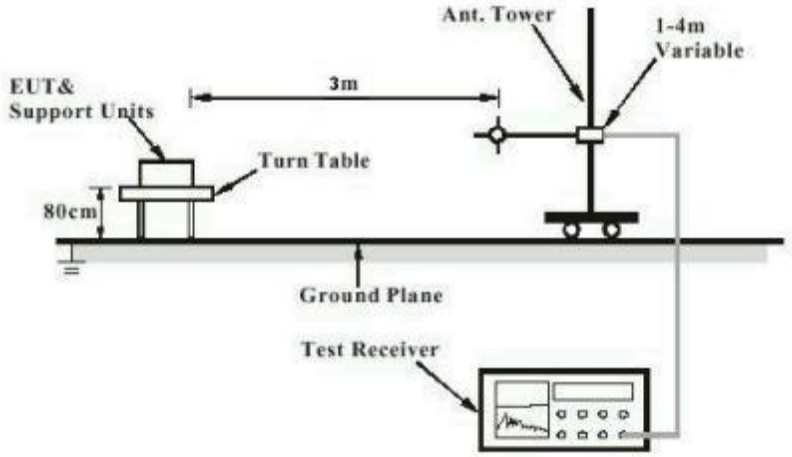


Diagram of Measurement Configuration for Radiation Test (Below 1GHz)



5 Test Results

5.1 Transmitter Requirements & Test Suites

5.1.1 Radiated Spurious Emissions

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.201
Basic standard	:	ANSI C63.10: 2013
Frequency range	:	9kHz - 1000MHz
Classification	:	Class B
Limit	:	FCC Part 15.209 (a)
Kind of test site	:	3m Semi-anechoic Chamber

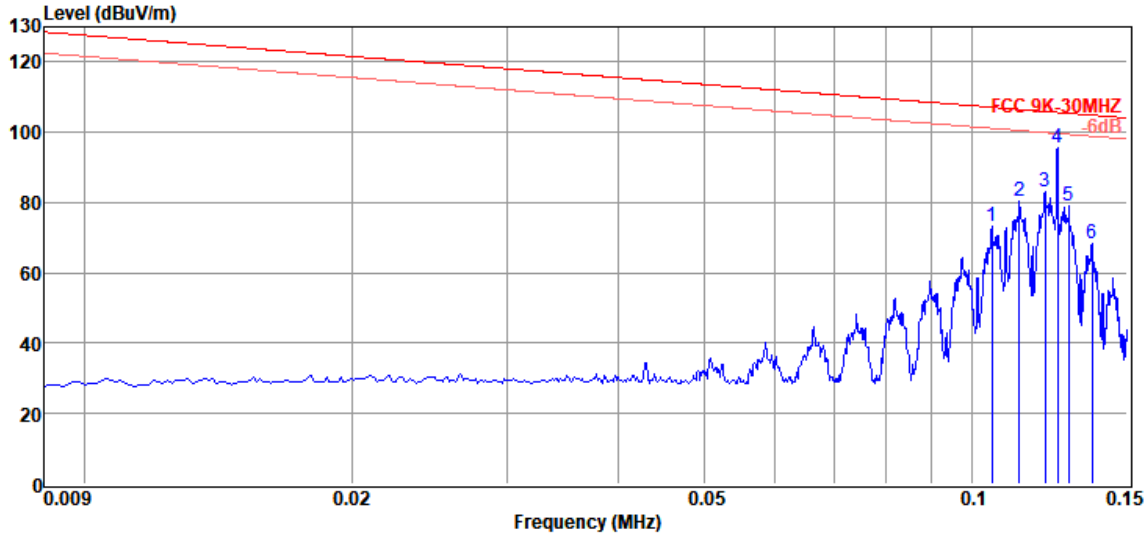
Test Setup

Date of testing	:	2024-09-24
Input voltage	:	DC 12V
Operation mode	:	A
Ambient temperature	:	Refer to test result
Relative humidity	:	Refer to test result
Atmospheric pressure	:	Refer to test result

Below 30MHz

Test Site	: 2# 966 chamber				
Test Date	: 2024-09-24		**Tested By**	:	Marker
EUT	: BCM		**Model Number**	:	HF3758/12
Power Supply	: DC 12V		**Test Mode**	:	TX Mode
Condition	: Temp:23.1℃;Humi 50%;Press:101.2kPa		**Polarization**	:	COAXIAL
Memo	:				

Data : 1

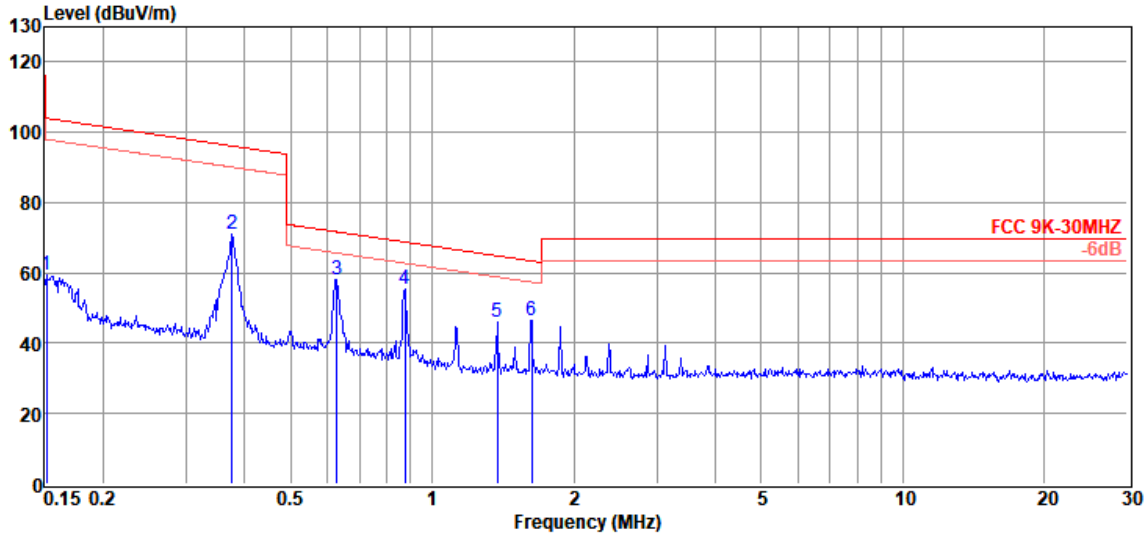


Item (Mark)	Freq (MHz)	Reading (dBuV)	Antenna Factor (dB/m)	Cable Loss dB	Emission Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Detector	Polarization
1	0.105	53.13	19.90	0.03	73.06	107.14	34.08	Peak	COAXIAL
2	0.113	60.51	19.90	0.03	80.44	106.52	26.08	Peak	COAXIAL
3	0.121	62.87	20.10	0.03	83.00	105.94	22.94	Peak	COAXIAL
4	0.125	75.63	20.10	0.03	95.76	105.66	9.90	Peak	COAXIAL
5	0.129	58.73	20.10	0.03	78.86	105.40	26.54	Peak	COAXIAL
6	0.137	48.10	20.10	0.03	68.23	104.89	36.66	Peak	COAXIAL

Remarks: 1. Emission Level = Reading+Antenna Factor + Cable Loss.
2. Margin = Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

Test Site	: 2# 966 chamber		
Test Date	: 2024-09-24	**Tested By**	: Marker
EUT	: BCM	**Model Number**	: HF3758/12
Power Supply	: DC 12V	**Test Mode**	: TX Mode
Condition	: Temp:23.1℃;Humi 50%;Press:101.2kPa	**Polarization**	: COAXIAL
Memo	:		

Data : 2

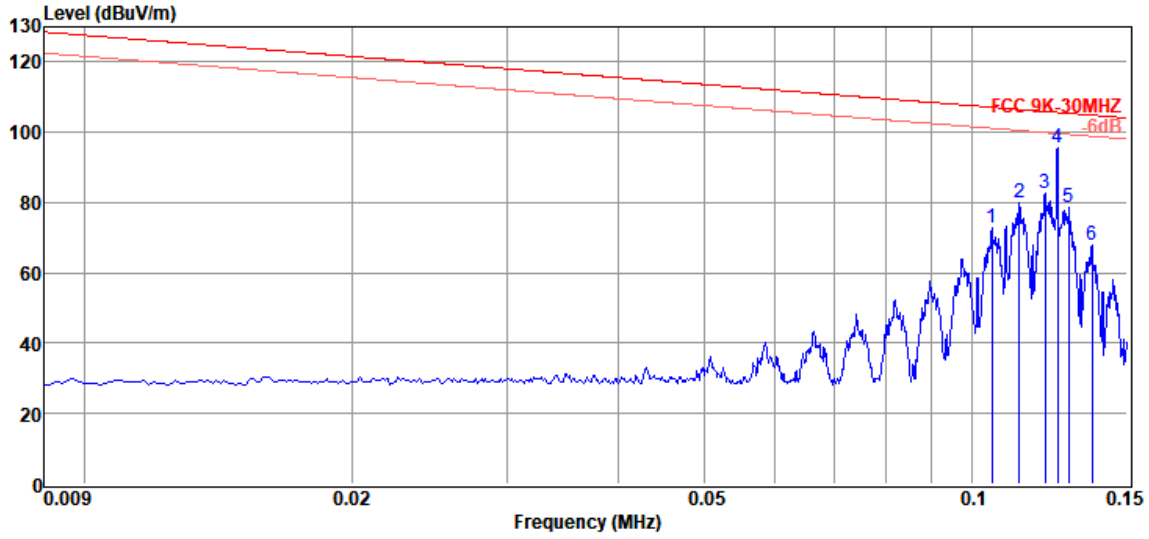


Item (Mark)	Freq (MHz)	Reading (dBuV)	Antenna Factor (dB/m)	Cable Loss dB	Emission Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Detector	Polarization
1	0.152	39.55	20.00	0.03	59.58	103.99	44.41	Peak	COAXIAL
2	0.375	51.13	19.94	0.03	71.10	96.12	25.02	Peak	COAXIAL
3	0.627	38.32	19.87	0.07	58.26	71.66	13.40	Peak	COAXIAL
4	0.876	35.54	19.82	0.07	55.43	68.76	13.33	Peak	COAXIAL
5	1.374	26.31	19.84	0.07	46.22	64.85	18.63	Peak	COAXIAL
6	1.628	26.64	19.86	0.10	46.60	63.37	16.77	Peak	COAXIAL

Remarks: 1. Emission Level = Reading+Antenna Factor + Cable Loss.
2. Margin = Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

Test Site	: 2# 966 chamber				
Test Date	: 2024-09-24	**Tested By**	: Marker		
EUT	: BCM	**Model Number**	: HF3758/12		
Power Supply	: DC 12V	**Test Mode**	: TX Mode		
Condition	: Temp:23.1℃;Humi 50%;Press:101.2kPa	**Polarization**	: COPLANAR		
Memo	:				

Data : 4

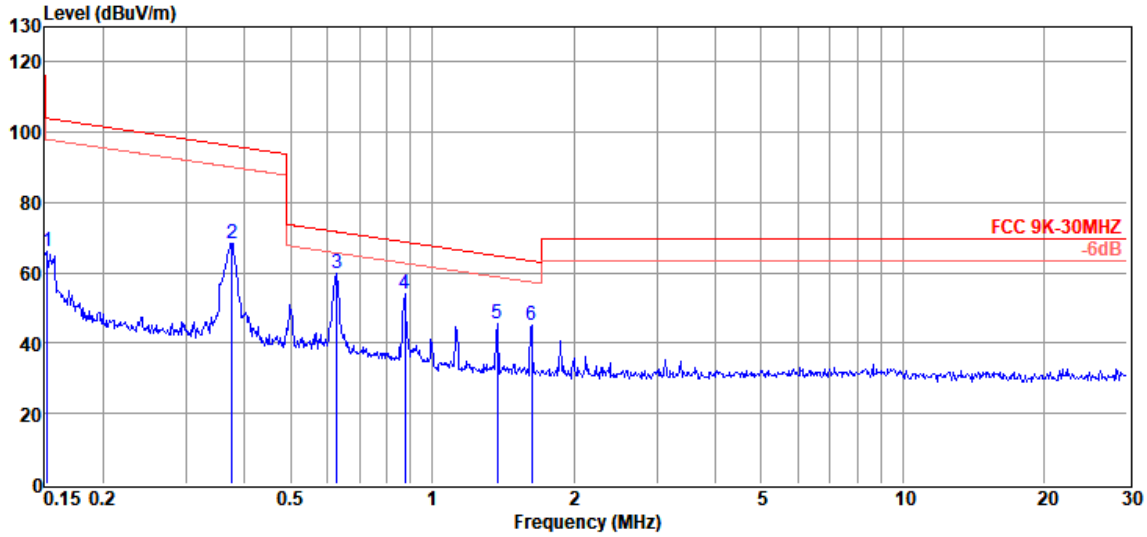


Item (Mark)	Freq (MHz)	Reading (dBuV)	Antenna Factor (dB/m)	Cable Loss dB	Emission Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Detector	Polarization
1	0.105	52.85	19.90	0.03	72.78	107.14	34.36	Peak	COPLANAR
2	0.113	60.06	19.90	0.03	79.99	106.52	26.53	Peak	COPLANAR
3	0.121	62.46	20.10	0.03	82.59	105.94	23.35	Peak	COPLANAR
4	0.125	75.69	20.10	0.03	95.82	105.66	9.84	Peak	COPLANAR
5	0.129	58.35	20.10	0.03	78.48	105.40	26.92	Peak	COPLANAR
6	0.137	47.68	20.10	0.03	67.81	104.89	37.08	Peak	COPLANAR

Remarks: 1. Emission Level = Reading+Antenna Factor + Cable Loss.
2. Margin = Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

Test Site	: 2# 966 chamber				
Test Date	: 2024-09-24		**Tested By**	:	Marker
EUT	: BCM		**Model Number**	:	HF3758/12
Power Supply	: DC 12V		**Test Mode**	:	TX Mode
Condition	: Temp:23.1℃;Humi 50%;Press:101.2kPa		**Polarization**	:	COPLANAR
Memo	:				

Data : 3



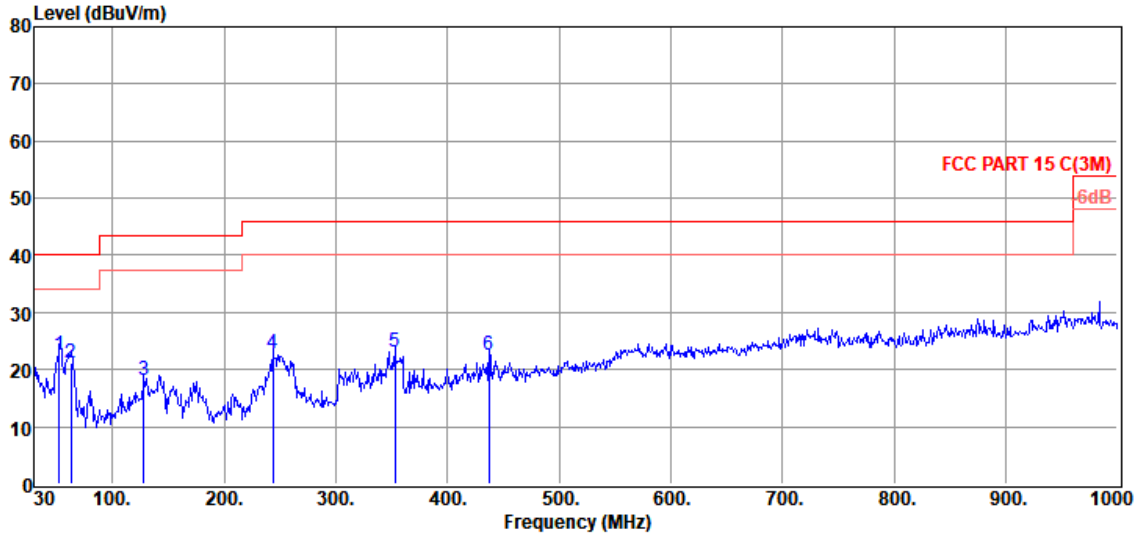
Item (Mark)	Freq (MHz)	Reading (dBuV)	Antenna Factor (dB/m)	Cable Loss dB	Emission Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Detector	Polarization
1	0.152	45.99	20.00	0.03	66.02	103.94	37.92	Peak	COPLANAR
2	0.375	48.49	19.94	0.03	68.46	96.12	27.66	Peak	COPLANAR
3	0.627	39.74	19.87	0.07	59.68	71.66	11.98	Peak	COPLANAR
4	0.876	33.97	19.82	0.07	53.86	68.76	14.90	Peak	COPLANAR
5	1.374	25.44	19.84	0.07	45.35	64.85	19.50	Peak	COPLANAR
6	1.628	25.28	19.86	0.10	45.24	63.37	18.13	Peak	COPLANAR

Remarks: 1. Emission Level = Reading+Antenna Factor + Cable Loss.
2. Margin = Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

30MHz to 1000MHz

Test Site	:	2# 966 chamber			
Test Date	:	2024-09-24	**Tested By**	:	Eric
EUT	:	BCM	**Model Number**	:	HF3758/12
Power Supply	:	DC 12V	**Test Mode**	:	TX Mode
Condition	:	Temp:27.8℃;Humi:62%;Press:101.3kPa	**Polarization**	:	HORIZONTAL
Memo	:				

Data : 6

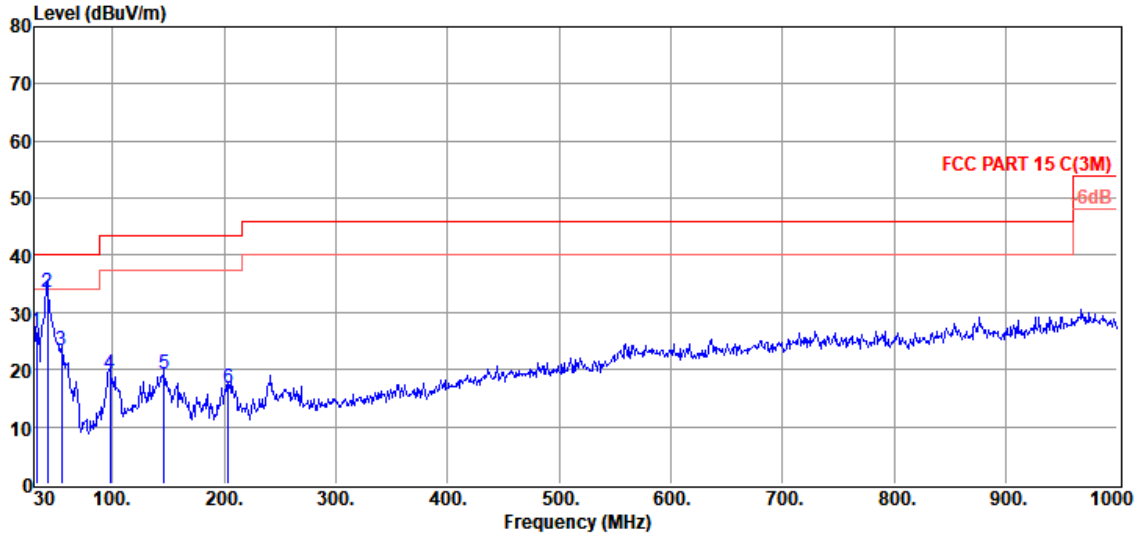


Item (Mark)	Freq (MHz)	Reading (dBuV)	Antenna Factor (dB/m)	Cable Loss dB	Emission Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Detector	Polarization
1	52.310	13.59	8.00	0.82	22.41	40.00	17.59	QP	HORIZONTAL
2	62.980	14.50	5.70	0.90	21.10	40.00	18.90	QP	HORIZONTAL
3	127.970	4.34	12.40	1.41	18.15	43.50	25.35	QP	HORIZONTAL
4	243.400	9.09	11.67	1.94	22.70	46.00	23.30	QP	HORIZONTAL
5	353.010	6.27	14.40	2.42	23.09	46.00	22.91	QP	HORIZONTAL
6	437.400	3.20	16.58	2.75	22.53	46.00	23.47	QP	HORIZONTAL

Remarks: 1. Emission Level = Reading+Antenna Factor + Cable Loss.
2. Margin = Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

Test Site	:	2# 966 chamber			
Test Date	:	2024-09-24	**Tested By**	:	Eric
EUT	:	BCM	**Model Number**	:	HF3758/12
Power Supply	:	DC 12V	**Test Mode**	:	TX Mode
Condition	:	Temp:27.8℃;Humi:62%;Press:101.3kPa	**Polarization**	:	VERTICAL
Memo	:				

Data : 5



Item (Mark)	Freq (MHz)	Reading (dBuV)	Antenna Factor (dB/m)	Cable Loss dB	Emission Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Detector	Polarization
1	31.940	9.00	16.90	0.64	26.54	40.00	13.46	QP	VERTICAL
2	41.640	20.73	12.20	0.72	33.65	40.00	6.35	QP	VERTICAL
3	54.250	15.31	7.20	0.84	23.35	40.00	16.65	QP	VERTICAL
4	97.900	8.04	10.00	1.21	19.25	43.50	24.25	QP	VERTICAL
5	146.400	5.75	11.90	1.53	19.18	43.50	24.32	QP	VERTICAL
6	203.630	6.17	8.90	1.80	16.87	43.50	26.63	QP	VERTICAL

Remarks: 1. Emission Level = Reading+Antenna Factor + Cable Loss.
2. Margin = Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

6 Photographs of the Test Set-Up

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

7 List of Tables