

Prüfbericht-Nr.: Test report no.:	CN26PDJ7 002	Auftrags-Nr.: Order no.:	27227218	Seite 1 von 18 Page 1 of 18
Kunden-Referenz-Nr.: Client reference no.:	N/A	Auftragsdatum: Order date:	2026-03-26	
Auftraggeber: Client:	Valeo Schalter und Sensoren GmbH Laiernstraße 12, 74321 Bietigheim-Bissingen, Germany			
Prüfgegenstand: Test item:	Automotive exterior radar			
Bezeichnung / Typ-Nr.: Identification / Type no.:	MFR1.2C00			
Auftrags-Inhalt: Order content:	Test Report			
Prüfgrundlage: Test specification:	47 CFR Part 95, Subpart M			
Wareneingangsdatum: Date of sample receipt:	2026-03-27	Refer to photo document		
Prüfmuster-Nr.: Test sample no.:	A004233953-001~023			
Prüfzeitraum: Testing period:	2026-03-29 to 2026-04-16			
Ort der Prüfung: Place of testing:	Refer to section 2.1			
Prüflaboratorium: Testing laboratory:	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: Test result*:	Pass			
geprüft von: tested by:	x <u>Bell Hu</u>		genehmigt von: authorized by:	x <u>Jonathan Li</u>
Datum: Date: 2026-06-11	Expert Signed by: Bell Hu		Ausstellungsdatum: Issue date: 2026-06-11	Expert Signed by: Jonathan Li
Stellung / Position:	Sachverständige(r)/Expert		Stellung / Position:	Sachverständige(r)/Expert
Sonstiges / Other:	FCC ID: VE2-MFR12C00			
Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery:	Prüfmuster vollständig und unbeschädigt Test item complete and undamaged			
* Legende:	P(ass) = entspricht o.g. Prüfgrundlage(n)	F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
* Legend:	P(ass) = passed a.m. test specification(s)	F(ail) = failed a.m. test specification(s)	N/A = not applicable	N/T = not tested
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the above mentioned test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>				

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Anmerkungen
Remarks

1	Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben. Detaillierte Informationen bezüglich 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 115:2023, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezüglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019. <i>The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2023, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.</i>

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Test Summary

5.1.1 MODULATION CHARACTERISTICS.

RESULT: Pass

5.1.2 RADIATED POWER

RESULT: Pass

5.1.3 FREQUENCY STABILITY

RESULT: Pass

5.1.4 99% BANDWIDTH

RESULT: Pass

5.1.5 RADIATED SPURIOUS EMISSION

RESULT: Pass

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1 General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Test Results of 77GHz Radar

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, People's Republic of China

A2LA Cert. No.: 5162.01

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	23.09.2025	22.09.2026
MXG X-Series RF Vector Signal Generator	Keysight	N5182B	MY61250137	23.09.2025	22.09.2026
EXG X-Series Microwave Analog Signal Generator	Keysight	N5173B	MY61250141	23.09.2025	22.09.2026
DC Power Supply	Keysight	E3642A	MY61276100	23.09.2025	22.09.2026
Wireless Connectivity Tester	R&S	CMW270	102505	23.09.2025	22.09.2026
Power Control Unit	Tonscend	JS0806-4ADC	N/A	23.09.2025	22.09.2026
Automation Control Unit	Tonscend	JS0806-2	21C8060396	23.09.2025	22.09.2026
MM-Wave Frequency Conversion Receiving Unit	Tonscend	MMFC-R190-L0F0	202305240001	2024-09-13	2027-09-12
MM-Wave Frequency Conversion Receiving Unit	Tonscend	MMFC-R150-L0F0	202305240001	2024-09-02	2027-09-01
MM-Wave Frequency Conversion Receiving Unit	Tonscend	MMFC-R100-L0F0	202305240001	2024-08-29	2027-08-28
MM-Wave Frequency Conversion Receiving Unit	Tonscend	MMFC-R060-L0F0	202305240001	2024-08-30	2027-08-29
MM-Wave Frequency Conversion Transmitting Unit	Tonscend	MMFC-T120-A1	202305240001	2024-09-11	2027-09-10
MM-Wave Frequency Conversion Receiving Unit	Tonscend	MMFC-R040-L0F0	202305240001	2023-11-01	2026-10-31
High Low Temperature Test Chamber	Cavendi	CATT-150C	231020001	2023-05-17	2026-05-16
Control PC	Lenovo	M4000q-00IRB	YLX3LXKQ	N/A	N/A
Unwanted Emission Testing (TS9975)					

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Equipment	Manufacturer	Model	Serial No.	Cal. Date	Cal. until
EMI Test Receiver	R&S	ESR 7	102021	22.09.2025	21.09.2026
Signal Analyzer	R&S	FSV 40	101439	22.09.2025	21.09.2026
System Controller Interface	R&S	SCI-100	S10010038	N/A	N/A
Filterbank	R&S	Wlan	100759	22.09.2025	21.09.2026
OSP	R&S	OSP 120	102040	N/A	N/A
Pre-amplifier	R&S	SCU08F1	08320031	22.09.2025	21.09.2026
Amplifier	R&S	SCU-18F	180070	22.09.2025	21.09.2026
Amplifier	R&S	SCU40A	100475	22.09.2025	21.09.2026
Trilog Broadband Antenna (30 MHz - 7 GHz)	Schwarzbeck	VULB 9162	193	28.09.2024	27.09.2026
Double-Ridged Antenna (1 -18 GHz)	ETS-LINDGREN	3117	00218717	28.09.2024	27.09.2026
Wideband Ridged Horn Antenna (18-40 GHz)	Steatite	QMS-00880	19067	28.09.2024	27.09.2026
Active Loop Antenna	Schwarzbeck	FMZB 1513	302	28.09.2024	27.09.2026
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	14.09.2024	13.09.2027
MM-Wave Frequency Conversion Receiving Unit	Tonscend	MMFC-R190-L0F0	202305240001	2024-09-13	2027-09-12
MM-Wave Frequency Conversion Receiving Unit	Tonscend	MMFC-R150-L0F0	202305240001	2024-09-02	2027-09-01
MM-Wave Frequency Conversion Receiving Unit	Tonscend	MMFC-R100-L0F0	202305240001	2024-08-29	2027-08-28
MM-Wave Frequency Conversion Receiving Unit	Tonscend	MMFC-R060-L0F0	202305240001	2024-08-30	2027-08-29
MM-Wave Frequency Conversion Transmitting Unit	Tonscend	MMFC-T120-A1	202305240001	2024-09-11	2027-09-10
MM-Wave Frequency Conversion Receiving Unit	Tonscend	MMFC-R040-L0F0	202305240001	2023-11-01	2026-10-31
High Low Temperature Test Chamber	Cavendi	CATT-150C	231020001	2023-05-17	2026-05-16
Control PC	Lenovo	M4000q-00IRB	YLX3LXKQ	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
Occupied Bandwidth	$\pm 2.08 \%$
Spurious emissions	$\pm 3.68 \text{ dB}$
Output power density	$\pm 0.99 \text{ dB}$
Antenna Power	$\pm 0.99 \text{ dB}$
Frequency Tolerance	0.104 ppm

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 2-3F, 101 & 102, No.2, Nuclear Power Industrial Park, Fuming Community, Fucheng Street, Longhua District, Shenzhen 518000, People's Republic of China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3 General Product Information

3.1 Product Function and Intended Use

The device is automotive exterior radar for object detection, which is a FMCW radar sensor module operating in the 76GHz–77GHz band, 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:	Automotive exterior radar
Type Designation:	MFR1.2C00
Operating Voltage:	9-16V DC
Testing operating voltage:	12V DC
Operating Temperature Range:	-40 °C ~ 85 °C
FCC ID:	VE2-MFR12C00
Technical Specification of EUT	Value
Assigned Band:	76GHz to 77GHz
Operation Frequency Range:	76GHz to 77GHz
Operation Frequency Bandwidth:	630MHz
Type of Modulation:	FMCW
Antenna Type:	Internal wave guide Antenna
Antenna Gain:	14.27dBi (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.

For Modulation characteristics (§2.1047 & KDB 653005 D01 76-81 GHz Radars)

This information is under NDA and provided in applicants document "Operational description".

3.3 Independent Operation Modes

The basic operation modes are:

- A. On, 76-77GHz Radar wireless transmitting mode
- 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 C63.26-2015.

4.3 Special Accessories and Auxiliary Equipment

Table 4: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N	Rating
PC	Lenovo	T14	/	/
Wiring harnesses	Valeo	/	/	/
Ethernet/CAN Interface	VECTOR	VN1630	/	/

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)

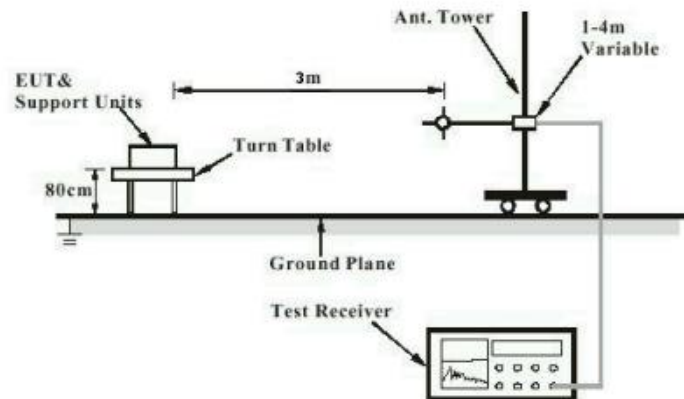


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

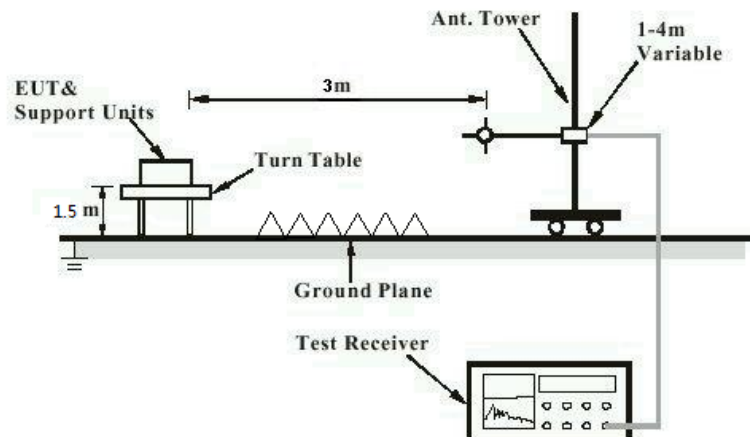
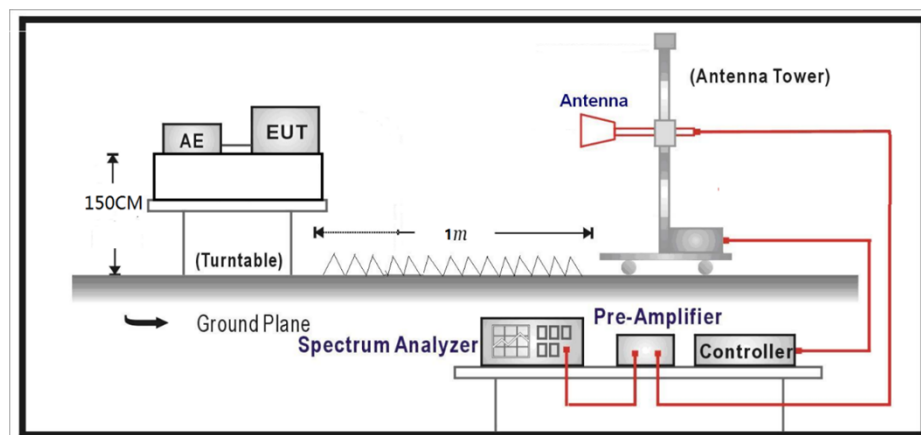


Diagram of Measurement Configuration for Radiation Test (Above 40GHz)



5 Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Modulation characteristics.

RESULT:

Pass

Test Specification

Requirement : 47 CFR Part 2.1047

KDB 653005 D01 76-81 GHz Radars v01r02, section 3 (g)

This information is under NDA and provided in applicants document "Operational description".

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5.1.2 Radiated Power

RESULT:

Pass

Test Specification

Test standard : 47 CFR Part 2.1046, 47 CFR Part 2.1051
47 CFR Part 95.3367
Basic standard : ANSI C63.26-2015
Limits : Peak EIRP <55dBm/MHz
Average EIRP <50dBm/MHz

Test Setup

Date of testing : 2026-04-05 to 2026-04-15
Input voltage : DC 12V
Operation mode : A
Ambient temperature : 25 °C
Relative humidity : 45 %
Atmospheric pressure : 101 kPa

For details refer to following test result.

For the measurement records, refer to the appendix A.

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5.1.3 Frequency Stability

RESULT:

Pass

Test Specification

Test standard : 47 CFR Part 95.3379, 47 CFR Part 2.1055
Basic standard : ANSI C63.26-2015
Limits : Within assigned bands (76-81GHz)

Test Setup

Date of testing : 2026-04-05 to 2026-04-15
Input voltage : DC 12V
Operation mode : A
Ambient temperature : 25 °C
Relative humidity : 45 %
Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix A.

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5.1.4 99% Bandwidth

RESULT:

Pass

Test Specification

Test standard	: 47 CFR Part 2.1049
Basic standard	: ANSI C63.26-2015
Limits	: Within assigned bands (76-81GHz)

Test Setup

Date of testing	: 2026-04-05 to 2026-04-15
Input voltage	: DC 12V
Operation mode	: A
Ambient temperature	: 25 °C
Relative humidity	: 45 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix A.

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5.1.5 Radiated Spurious Emission

RESULT:

Pass

Test Specification

Test standard : 47 CFR Part 95.3379, 47 CFR Part 2.1053
Basic standard : ANSI C63.26-2015
Limits : Below 40GHz: refer to 47 CFR Part 95.3379 (a)(1)
Above 40GHz: refer to 47 CFR Part 95.3379 (a)(2)

Test Setup

Date of testing : 2026-04-05 to 2026-04-15
Input voltage : DC 12V
Operation mode : A
Ambient temperature : Refer to test result
Relative humidity : Refer to test result
Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix A.

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6 Photographs of the Test Set-Up

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

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Appendix A
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Test Report - Products

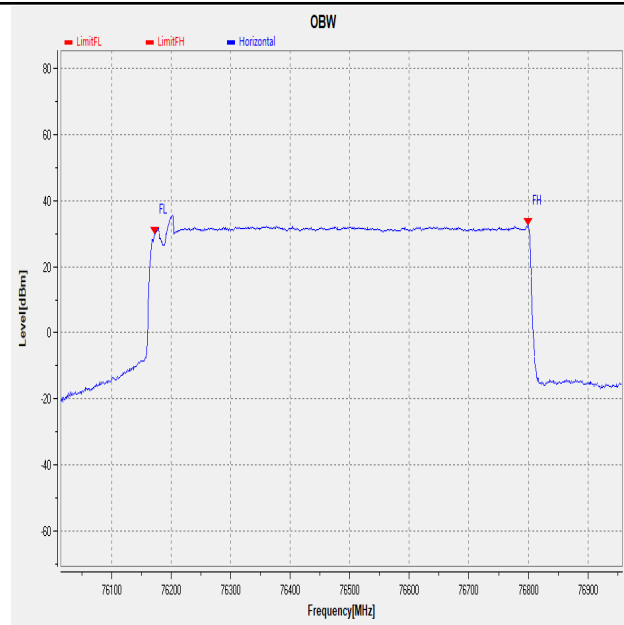
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APPENDIX A.1: 99% OCCUPIED BANDWIDTH

Test Results

Condition	Mode	RBW (MHz)	VBW (MHz)	F _L (GHz)	F _H (GHz)	Limit [GHz]	Bandwidth (GHz)
NTNV	A	1	3	76.172	76.800	76 - 81GHz	0.628

Test Graphs



SPA setting:

Measurement

Setting	Instrument Value	Target Value
RBW	1 MHz	1 MHz
VBW	3MHz	3MHz

Pass

APPENDIX A.2: RADIATED POWER

Test Results PEAK EIRP

Mode	Det	RBW (MHz)	VBW (MHz)	Level (dBm)	Ant. Height (m)	Test Distance	Limit (dBm)	Verdict
A	PK	1	3	37.782	1.5	1m	55	PASS

Note:

1. The desensitization factor has been compensated to the peak value in above table. Refer to Desensitization factor and sweep time considerations for measurements of FMCW signals.

The desensitization factor has been considered in the test result.

Final EIRP[dBm]=Measured EIRP[dBm]+ Desensitization Factor[dB]

$$\alpha = \frac{1}{\sqrt{1 + \left(\frac{2 \ln(2)}{\pi} \right)^2 \left(\frac{BW_{\text{Chirp}}}{T_{\text{Chirp}} B^2} \right)^2}} \quad (\text{L.1})$$

where

α is the reduction in amplitude
 BW_{Chirp} is the FMCW Chirp Bandwidth
 T_{Chirp} is the FMCW Chirp Time
 B is the 3 dB IF Bandwidth = RBW

Test Results Average EIRP

Condition	Mode	Det	RBW (MHz)	VBW (MHz)	EIRP* (dBm)	Ant. Height (m)	Test Distance	Limit (dBm)	Verdict
NTNV	A	RMS	1	3	24.316	1.5m	1m	<= 50	PASS

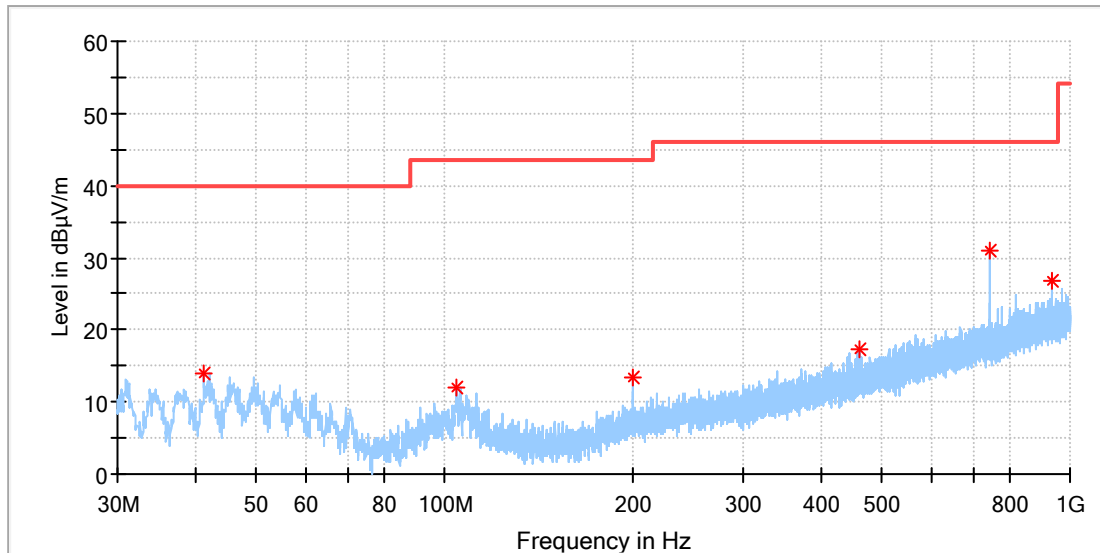
*Integrated average power in OBW.

APPENDIX A.3: SPURIOUS EMISSIONS

Test Results (Below 1GHz)

EUT Information

EUT Name: Automotive exterior radar
Model: MFR1.2C00
Test Mode: A
Order No/Sample No: A004233953-015
Test Voltage:: DC 12V
Remark: Temp 23 Humi:53%
Test Standard: Part 95M
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical Freqs

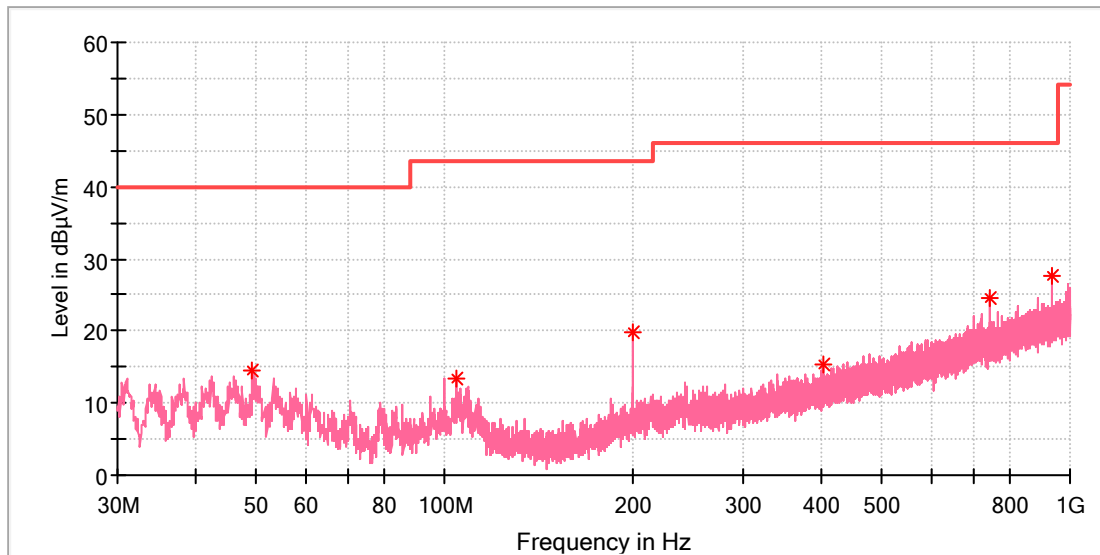
Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
41.262778	13.94	40.00	26.06	100.0	H	328.0	-19.9
104.797778	12.09	43.50	31.41	100.0	H	22.0	-18.9
200.019444	13.50	43.50	30.00	100.0	H	206.0	-19.1
460.302778	17.26	46.00	28.74	100.0	H	0.0	-12.6
742.518889	30.86	46.00	15.14	100.0	H	352.0	-7.2
938.405000	26.84	46.00	19.16	100.0	H	38.0	-4.4

Final Result

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

EUT Information

EUT Name: Automotive exterior radar
Model: MFR1.2C00
Test Mode: A
Order No/Sample No: A004233953-015
Test Voltage:: DC 12V
Remark: Temp 23 Humi:53%
Test Standard: Part 95M
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)
49.346111	14.41	40.00	25.59	100.0	V	160.0	-18.4
104.528333	13.50	43.50	30.00	100.0	V	129.0	-18.9
200.019444	19.84	43.50	23.66	100.0	V	64.0	-19.1
404.689444	15.33	46.00	30.67	100.0	V	206.0	-13.6
742.518889	24.62	46.00	21.38	100.0	V	212.0	-7.2
936.950000	27.52	46.00	18.48	100.0	V	97.0	-4.4

Final_Result

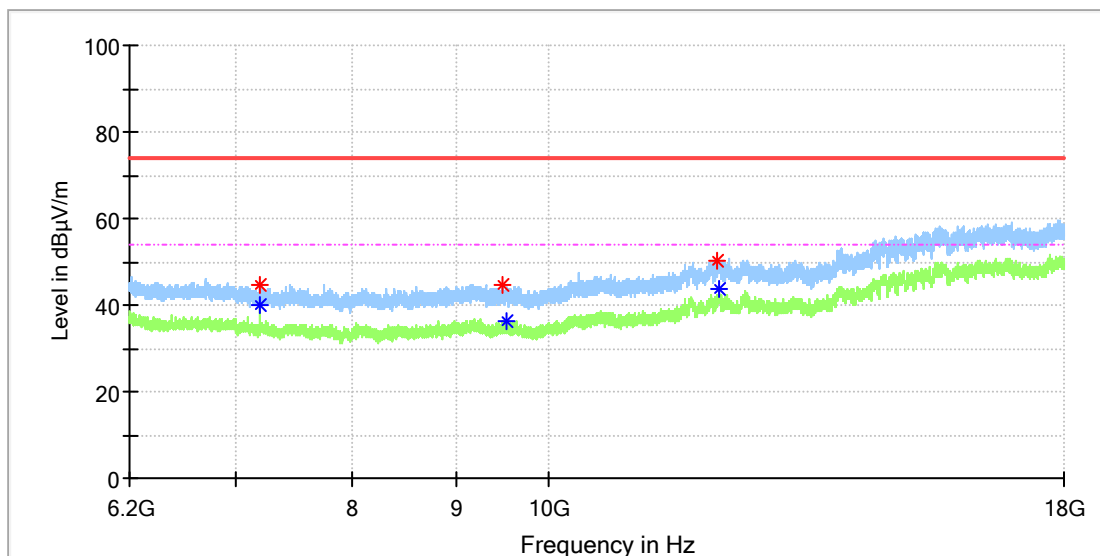
Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

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

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:	Automotive exterior radar
Model:	MFR1.2C00
Test Mode:	A
Order No/Sample No:	A004233953-015
Test Voltage::	DC 12V
Remark:	Temp 23 Humi:53%
Test Standard:	Part 95M
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

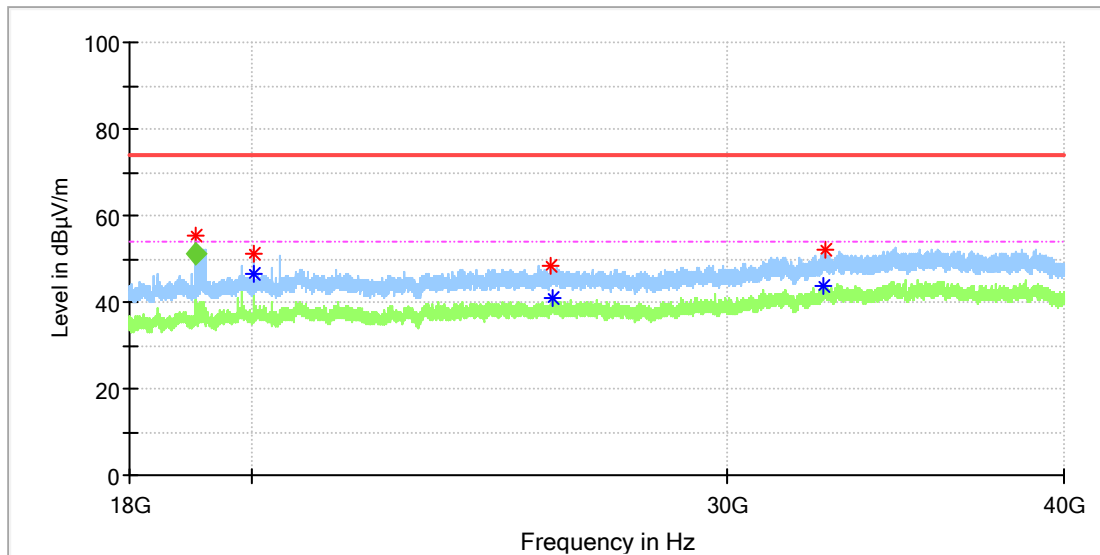
Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	PoI	Azimuth (deg)	Corr. (dB/m)
7200.050000	---	40.02	54.00	13.98	150.0	H	248.0	8.8
7200.541667	44.84	---	74.00	29.16	150.0	H	248.0	8.8
9495.641667	44.51	---	74.00	29.49	150.0	H	293.0	9.9
9526.616667	---	36.20	54.00	17.80	150.0	H	281.0	10.1
12130.975000	50.40	---	74.00	23.60	150.0	H	337.0	16.2
12157.525000	---	43.49	54.00	10.51	150.0	H	259.0	16.3

Final_Result

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

EUT Information

EUT Name:	Automotive exterior radar
Model:	MFR1.2C00
Test Mode:	A
Order No/Sample No:	A004233953-015
Test Voltage::	DC 12V
Remark:	Temp 23 Humi:53%
Test Standard:	Part 95M
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)
19050.500000	55.31	---	74.00	18.69	150.0	H	250.0	-12.1
20013.000000	---	46.49	54.00	7.51	150.0	H	135.0	-11.3
20013.000000	50.99	---	74.00	23.01	150.0	H	135.0	-11.3
25774.937500	48.19	---	74.00	25.81	150.0	H	0.0	-8.3
25844.375000	---	40.96	54.00	13.04	150.0	H	250.0	-8.3
32566.750000	---	43.89	54.00	10.11	150.0	H	45.0	-8.0
32602.500000	51.88	---	74.00	22.12	150.0	H	337.0	-8.0

Final_Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
19050.508750	---	51.28	54.00	2.72	150.0	H	250.0	-12.1

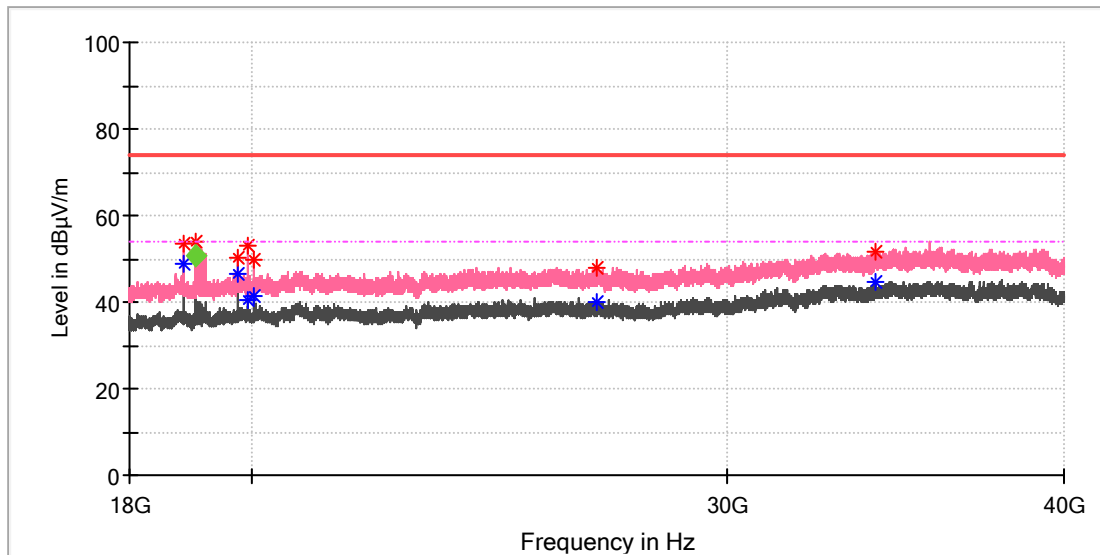
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EUT Information

EUT Name:	Automotive exterior radar
Model:	MFR1.2C00
Test Mode:	A
Order No/Sample No:	A004233953-015
Test Voltage::	DC 12V
Remark:	Temp 23 Humi:53%
Test Standard:	Part 95M
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)
18851.812500	53.65	---	74.00	20.35	150.0	V	0.0	-12.0
18852.500000	---	48.97	54.00	5.03	150.0	V	0.0	-12.0
19049.812500	53.77	---	74.00	20.23	150.0	V	208.0	-12.1
19749.687500	50.20	---	74.00	23.80	150.0	V	62.0	-11.4
19750.375000	---	46.43	54.00	7.57	150.0	V	62.0	-11.4
19919.500000	---	40.67	54.00	13.33	150.0	V	130.0	-11.4
19919.500000	52.93	---	74.00	21.07	150.0	V	130.0	-11.4
20012.312500	49.97	---	74.00	24.03	150.0	V	294.0	-11.3
20012.312500	---	41.50	54.00	12.50	150.0	V	294.0	-11.3
26810.312500	47.84	---	74.00	26.16	150.0	V	3.0	-8.3
26840.562500	---	40.17	54.00	13.83	150.0	V	233.0	-8.4
34022.187500	51.64	---	74.00	22.36	150.0	V	19.0	-7.5
34054.500000	---	44.61	54.00	9.39	150.0	V	104.0	-7.5

Final_Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
19050.427188	---	50.88	54.00	3.12	150.0	V	205.0	-12.1

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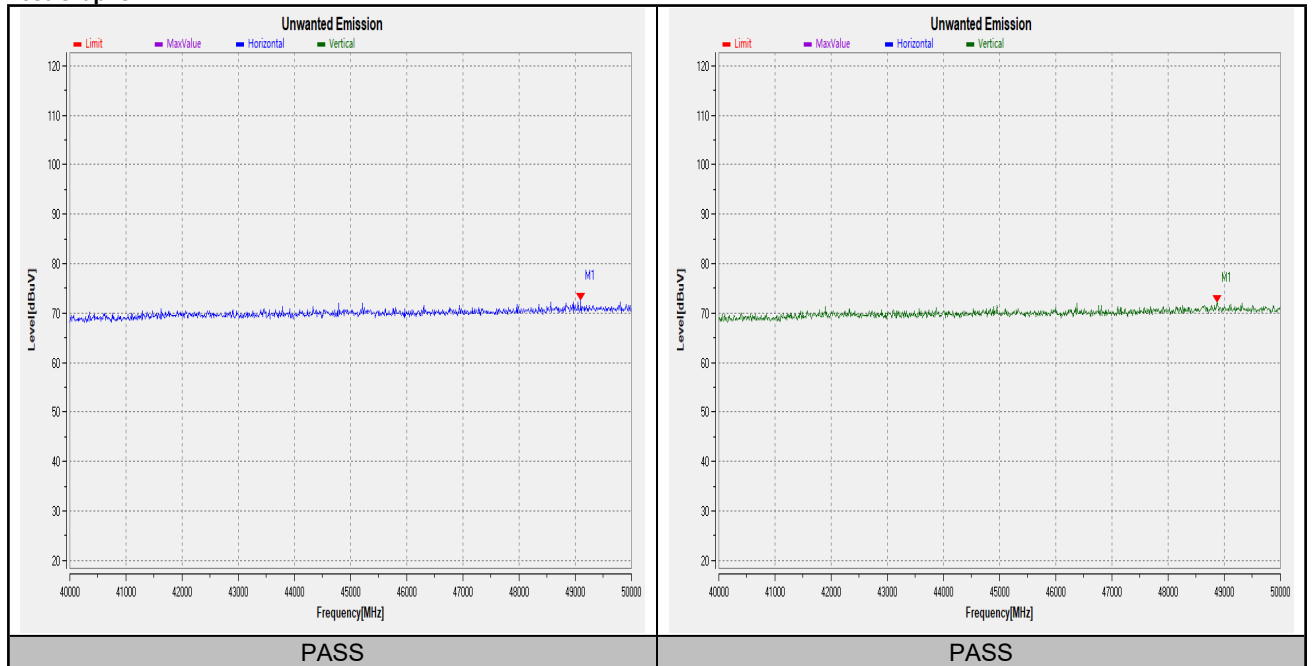
Test Results (Above 40GHz)

Condition	Mode	Mk No.	Det	RBW (MHz)	VBW (MHz)	Test Distance (m)	Frequency (MHz)	Meas. @1m (dBuV/m)	Meas. @3m (dBuV/m)	Power Density@3m (pW/cm2)	Ant. Polarity (H/V)	Limit@3m (pW/cm2)	Verdict
NTNV	A	M1	PK	1	3	1m	49100.000	72.611	63.071	0.530	H	600	PASS
NTNV	A	M1	PK	1	3	1m	48870.000	72.136	62.596	0.475	V	600	PASS
NTNV	A	M1	PK	1	3	1m	57300.000	88.916	79.376	22.614	H	600	PASS
NTNV	A	M1	PK	1	3	1m	70450.000	73.644	64.104	0.672	V	600	PASS
NTNV	A	M1	PK	1	3	1m	76170.000	88.917	79.377	22.619	H	600	PASS
NTNV	A	M2	PK	1	3	1m	85943.660	85.311	75.771	9.860	H	600	PASS
NTNV	A	M1	PK	1	3	1m	76043.280	72.827	63.287	0.557	V	600	PASS
NTNV	A	M2	PK	1	3	1m	109179.180	73.970	64.43	0.724	V	600	PASS
NTNV	A	M1	PK	1	3	1m	165200.000	79.281	69.741	2.460	H	600	PASS
NTNV	A	M1	PK	1	3	1m	140660.000	78.639	69.099	2.122	V	600	PASS
NTNV	A	M1	PK	1	3	1m	203750.000	86.681	77.141	13.517	H	1000	PASS
NTNV	A	M1	PK	1	3	1m	211310.000	86.184	76.644	12.055	V	1000	PASS

Note: *The convert factor $20 \cdot \log(3\text{m}/1\text{m})$ was compensated for 1m to 3m distance.

**EIRP (dBm)=E(dBuV/m@3m)-95.3, MPE= EIRP/(4*PI*R^2), R=3m

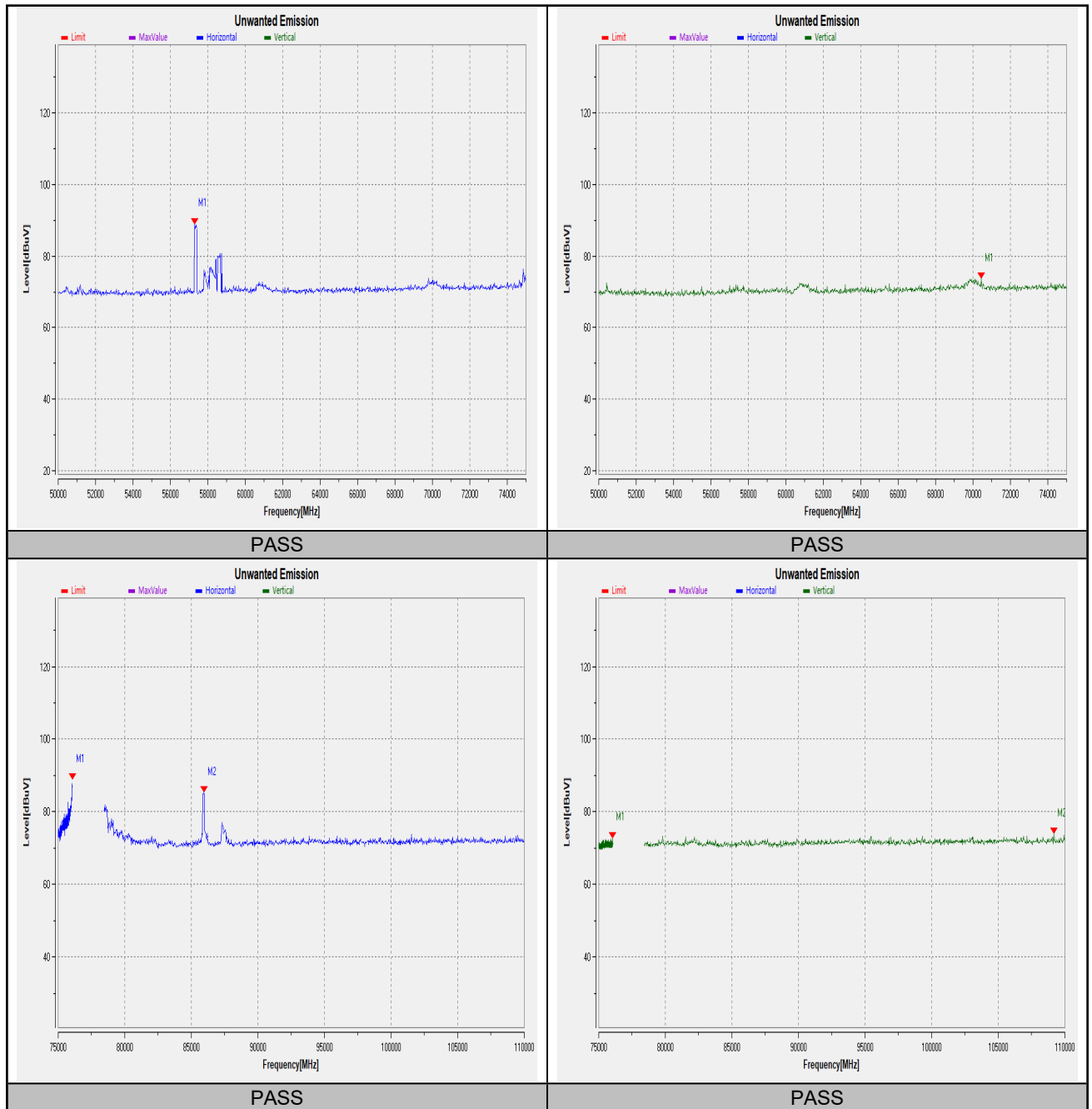
Test Graphs



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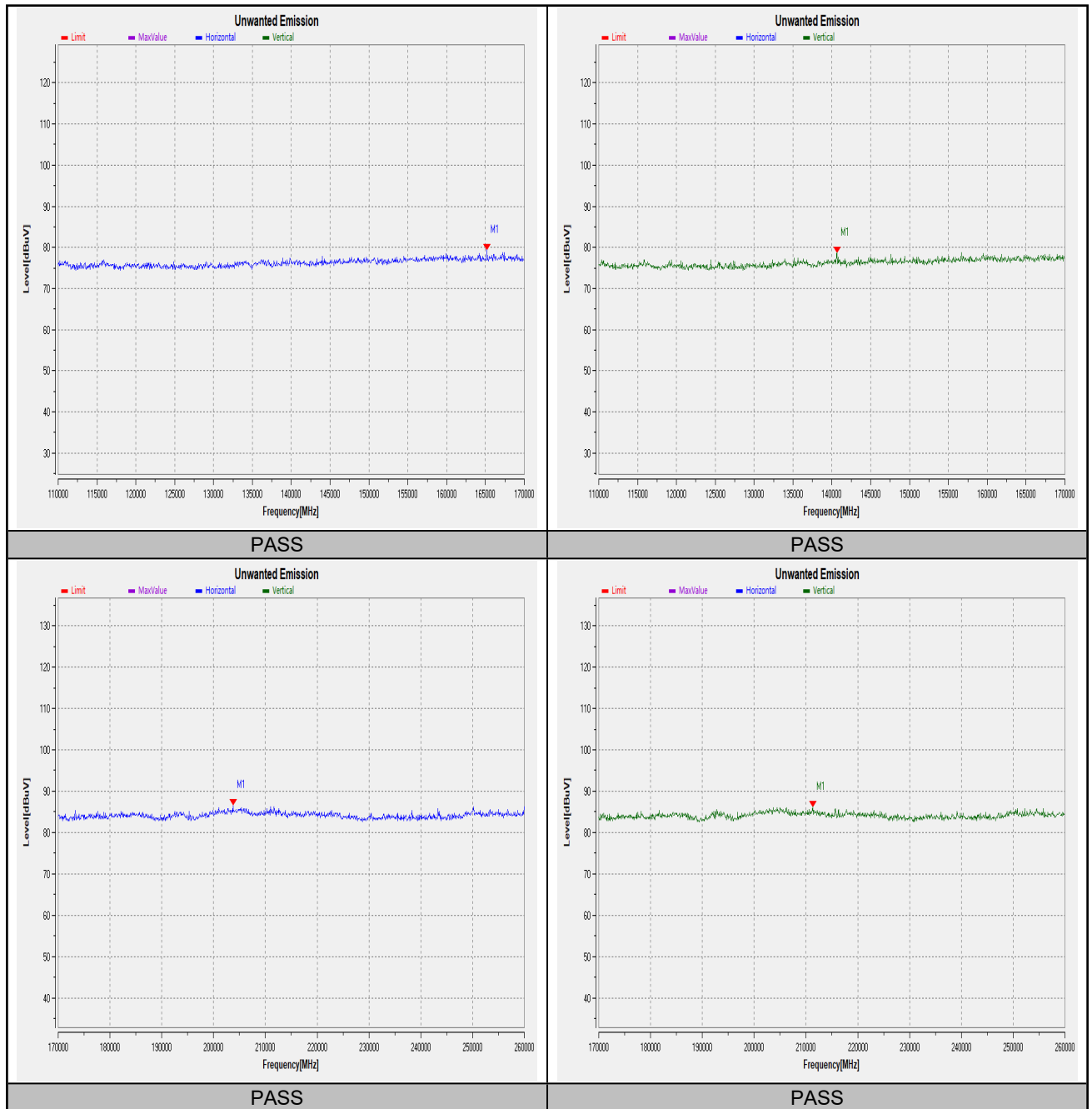
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APPENDIX A.4: FREQUENCY STABILITY

Voltage (%)	Power (VDC)	Temp (°C)	FL (GHz)	FH (GHz)	Limit (GHz)	Result
100%	12V	-40	76.172	76.800	76-81 GHz	Pass
		-30	76.172	76.799	76-81 GHz	Pass
		-20	76.173	76.801	76-81 GHz	Pass
		-10	76.172	76.801	76-81 GHz	Pass
		0	76.173	76.800	76-81 GHz	Pass
		+ 10	76.173	76.801	76-81 GHz	Pass
		+20	76.172	76.801	76-81 GHz	Pass
		+30	76.173	76.800	76-81 GHz	Pass
		+40	76.173	76.800	76-81 GHz	Pass
		+50	76.173	76.800	76-81 GHz	Pass
		+60	76.172	76.800	76-81 GHz	Pass
		+70	76.172	76.800	76-81 GHz	Pass
		+80	76.172	76.801	76-81 GHz	Pass
		+85	76.173	76.799	76-81 GHz	Pass
115%	13.8V	+20	76.172	76.801	76-81 GHz	Pass
85%	10.2V	+20	76.173	76.801	76-81 GHz	Pass

===== THE END =====