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TEST REPORT

Application No.:	SZCR2311003510ET (SGS HK NO.: T32320330013EM)
Applicant:	Revell GmbH
Address of Applicant:	Henschelstr. 20-30, Buende 32257 Germany
Buyer:	Revell
Supplier:	CoolerStuff
Equipment Under Test (EUT	·):
EUT Name:	RC CAR GHOST DRIVER "1 ORANGE", "2 ROT", "3 PINK", Soccer Set
Item No.:	24682, 24683, 24684, 24689 🔹
÷	Please refer to section 2 of this report which indicates which item was actually tested and which were electrically identical.
P.O. No.:	Нхххх
Country of Origin:	China
Country of Destination:	US
Labeled Age Grading:	6+
FCC ID:	2A7EW246829030
Standard(s) :	47 CFR Part 15, Subpart C 15.249
Date of Receipt:	2023-11-02
Date of Test:	2023-12-04 to 2023-12-08
Date of Issue:	2023-12-11
Test Result:	Pass*

* In the configuration tested, the EUT complied with the standards specified above.

Keny. KN

Keny Xu EMC Laboratory Manager



Laboration y Main ages Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>https://www.sgs.com/en/Terms-and-Conditions</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction of our of falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only. Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com or email: CN.Doccheck@sgs.com diverses the sample(s) tested and biblid, Shanban, Guandong China 518057 t (86-755) 26710594 www.sgsgroup.com.on (中国 ·广东 ·深圳市南山区科技园中区M-10栋1号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

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	Revision Record				
Version	Version Chapter Date Modifier				
01	2023-12-11			Original	

Authorized for issue by:		
	Martin Tang	
	Martin Tang/Project Engineer	
	Eric Fu	
	Eric Fu/Reviewer	



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Test Summary 2

Radio Spectrum Technical Requirement				
Item Standard Method Requirement Resu				
Antenna Requirement	47 CFR Part 15, Subpart C 15.249	N/A	47 CFR Part 15, Subpart C 15.203	Pass

Radio Spectrum Matter Part					
Item	Standard	Method	Requirement	Result	
20dB Bandwidth		ANSI C63.10 (2013) Section 6.9	47 CFR Part 15, Subpart C 15.215	Pass	
Field Strength of the Fundamental Signal (15.249(a))		ANSI C63.10 (2013) Section 6.5&6.6	47 CFR Part 15, Subpart C 15.249(a)	Pass	
Restricted Band Around Fundamental Frequency	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.10.5	47 CFR Part 15, Subpart C 15.205 & 15.249(d) & 15.209	Pass	
Radiated Emissions Below 1GHz		ANSI C63.10 (2013) Section 6.4&6.5	47 CFR Part 15, Subpart C 15.209 & 15.249 (a),(d)	Pass	
Radiated Emissions Above 1GHz		ANSI C63.10 (2013) Section 6.6	47 CFR Part 15, Subpart C 15.209 & 15.249 (a),(d)	Pass	

Declaration of EUT Family Grouping:

Item No.: 24682, 24683, 24684, 24689

Only the item 24683 was tested, since according to the declaration from the applicant, the electrical circuit design, layout, components used, internal wiring and functions were identical for the above items, with only difference on item No, color and decorations.



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General Information 4

4.1 Details of E.U.T.

Power supply:	4.5V DC (1.5V x 3 "AA" Size Batteries) for Car
Cable Loss (for RF conducted test):	-0.5dB
Operation Frequency:	2405MHz-2475MHz
Modulation Type:	GFSK
Number of Channels:	71
Antenna Type:	PCB Antenna
Antenna Gain:	2dBi

Remark: The information in this section is provided by the applicant or manufacturer, SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.

Channel List:

Channel	Frequency	Channel	Frequency	Channel	Frequency
	(MHz)		(MHz)		(MHz)
1	2405	25	2429	49	2453
2	2406	26	2430	50	2454
3	2407	27	2431	51	2455
4	2408	28	2432	52	2456
5	2409	29	2433	53	2457
6	2410	30	2434	54	2458
7	2411	31	2435	55	2459
8	2412	32	2436	56	2460
9	2413	33	2437	57	2461
10	2414	34	2438	58	2462
11	2415	35	2439	59	2463
12	2416	36	2440	60	2464
13	2417	37	2441	61	2465
14	2418	38	2442	62	2466
15	2419	39	2443	63	2467
16	2420	40	2444	64	2468
17	2421	41	2445	65	2469
18	2422	42	2446	66	2470
19	2423	43	2447	67	2471
20	2424	44	2448	68	2472
21	2425	45	2449	69	2473
22	2426	46	2450	70	2474
23	2427	47	2451	71	2475
24	2428	48	2452	/	/



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4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.		
The EUT has been tested as an independent unit.					

4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
20dB Bandwidth	± 3%
Field Strength of the Fundamental Signal (15.249(a))	± 4.5dB (Below 1GHz);± 4.8dB (Above 1GHz)
Restricted Band Around Fundamental Frequency	± 6.0dB (Below 1GHz);± 4.6dB (Above 1GHz)
Radiated Emissions Below 1GHz	\pm 6.0dB for 3m; \pm 5.0dB for 10m
Radiated Emissions Above 1GHz	± 4.6dB (1GHz-18GHz);± 4.8dB (18MHz-40GHz)
Remark: The U _{lab} (lab Uncertainty) is less than U _{cispr/ETSI} (CISPR/ETSI Uncerta – compliance is deemed to occur if no measured disturbance level ex	- /

- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.



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4.4 Test Location

All tests were performed at: SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China. 518057. Tel: +86 755 2601 2053 Fax: +86 755 2671 0594 No tests were sub-contracted.

4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

VCCI (Member No. 1937)

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz. Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen EMC laboratory have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• FCC – Designation Number: CN1336

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1336. Test Firm Registration Number: 787754.

Innovation. Science and Economic Development Canada

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None



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5 **Equipment List**

20dB Bandwidth					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
DC Power Supply	Chroma	62012P-80-60	SEM011-11	2022-10-20	2023-10-19
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-19	2023-03-21	2024-03-20
Measurement Software	TST PASS	TST PASS V2.0	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-01	2023-07-07	2024-07-06
Attenuator	Huber+Suhner	6620_SMA-50- 1	SEM021-09	2023-03-31	2024-03-30
Programmable Temperature & Humidity Chamber	Votsch Industrietechnik GmbH	VT 4002	SEM002-15	2023-03-21	2024-03-20

Field Strength of the Fundamental Signal (15.249(a))							
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date		
3m Fully-Anechoic Chamber	AUDIX	N/A	SEM001-02	2023-04-01	2026-03-31		
Signal Analyzer	Rohde & Schwarz	FSV40	SEM008-04	2023-03-20	2024-03-19		
Horn Antenna	Rohde&Schwarz	HF907	SEM003-07	2023-07-23	2025-07-22		
Microwave system amplifier	Agilent	83017A	SEM005-25	2023-09-19	2024-09-18		
Measurement Software	AUDIX	e3 V8.2014-6- 27	N/A	N/A	N/A		
Coaxial Cable	SGS	N/A	SEM026-01	2023-07-07	2024-07-06		

Restricted Band Around Fundamental Frequency							
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date		
3m Fully-Anechoic Chamber	AUDIX	N/A	SEM001-02	2023-04-01	2026-03-31		
Signal Analyzer	Rohde & Schwarz	FSV40	SEM008-04	2023-03-20	2024-03-19		
Horn Antenna	Rohde&Schwarz	HF907	SEM003-07	2023-07-23	2025-07-22		
Microwave system amplifier	Agilent	83017A	SEM005-25	2023-09-19	2024-09-18		
Measurement Software	AUDIX	e3 V8.2014-6- 27	N/A	N/A	N/A		
Coaxial Cable	SGS	N/A	SEM026-01	2023-07-07	2024-07-06		
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	SEM003-15	2022-08-10	2024-08-09		
Pre-Amplifier	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2023-03-20	2024-03-19		



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Radiated Emissions Below 1GHz							
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date		
Loop Antenna	ETS-Lindgren	6502	SEM003-08	2023-11-20	2025-11-19		
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2023-06-19	2026-06-18		
MXE EMI Receiver	Agilent Technologies	N9038A	SEM004-15	2023-10-19	2024-10-18		
BiConiLog Antenna	ETS-LINDGREN	3142C	SEM003-01	2023-09-16	2025-09-15		
Pre-Amplifier	Agilent Technologies	8447D	SEM005-01	2023-03-20	2024-03-19		
Measurement Software	AUDIX	e3 V8.2014-6- 27	N/A	N/A	N/A		
Coaxial Cable	SGS	N/A	SEM025-01	2023-07-07	2024-07-06		

Radiated Emissions Above 1GHz							
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date		
3m Fully-Anechoic Chamber	AUDIX	N/A	SEM001-02	2023-04-01	2026-03-31		
Signal Analyzer	Rohde & Schwarz	FSV40	SEM008-04	2023-03-20	2024-03-19		
Horn Antenna	Rohde&Schwarz	HF907	SEM003-07	2023-07-23	2025-07-22		
Microwave system amplifier	Agilent	83017A	SEM005-25	2023-09-19	2024-09-18		
Measurement Software	AUDIX	e3 V8.2014-6- 27	N/A	N/A	N/A		
Coaxial Cable	SGS	N/A	SEM026-01	2023-07-07	2024-07-06		

General used equipment						
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date	
Humidity/ Temperature Indicator	deli	8838	SEM002-32	2023-07-28	2024-07-27	
Humidity/ Temperature Indicator	deli	8838	SEM002-33	2023-07-28	2024-07-27	
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2023-03-23	2024-03-22	



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Radio Spectrum Technical Requirement 6

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203

6.1.2 Conclusion

15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement.

Antenna location: Refer to Internal photos



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Radio Spectrum Matter Test Results 7

20dB Bandwidth 7.1

Test Requirement	47 CFR Part 15, Subpart C 15.215
Test Method:	ANSI C63.10 (2013) Section 6.9

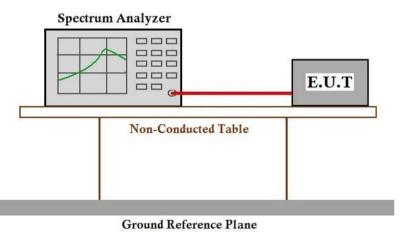
7.1.1 E.U.T. Operation

Operating Enviro	onment:				
Temperature:	22.3 °C	Humidity:	52.3 % RH	Atmospheric Pressure: 1000 r	mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	TX mode_Keep the EUT(car) in transmitting with modulation mode.

7.1.3 Test Setup Diagram



7.1.4 Measurement Procedure and Data

Test channel	20dB bandwidth (MHz)	Results
Lowest	1.145	Pass
Middle	1.144	Pass
Highest	1.140	Pass



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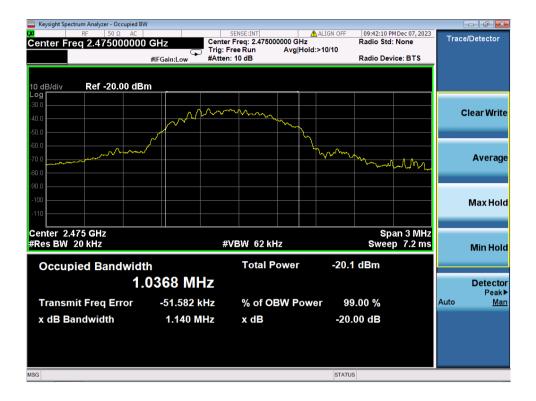
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7.2 Field Strength of the Fundamental Signal (15.249(a))

Test Requirement	47 CFR Part 15, Subpart C 15.249(a)
Test Method:	ANSI C63.10 (2013) Section 6.5&6.6
Measurement Distance:	3m

Limit:

Fundamental frequency(MHz)	Field strength of fundamental(millivolts/meter)	Field strength of harmonics(microvolts/meter)
902-928	50	500
2400-2483.5	50	500
5725-5875	50	500
24000-24250	250	2500

Remark: The frequencies above 1000MHz are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

For fundamental frequency in "902-928MHz", the field strength of fundamental is based on Quasi-Peak.

7.2.1 E.U.T. Operation

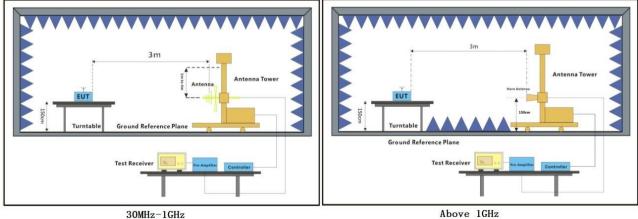
Operating Environment:

Temperature:	23.2 °C	Humidity:	52.6 % RH	Atmospheric Pressure:	1000	mbar

7.2.2 Test Mode Description

	Mode Code	Description
Final test	01	TX mode_Keep the EUT(car) in transmitting with modulation mode.

7.2.3 Test Setup Diagram





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7.2.4 Measurement Procedure and Data

a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

e.For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

f.The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

g.If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, guasi-peak or average method as specified and then reported in a data sheet.

h.Test the EUT in the lowest channel, the middle channel, the Highest channel.

i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.

j.Repeat above procedures until all frequencies measured was complete.

Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor



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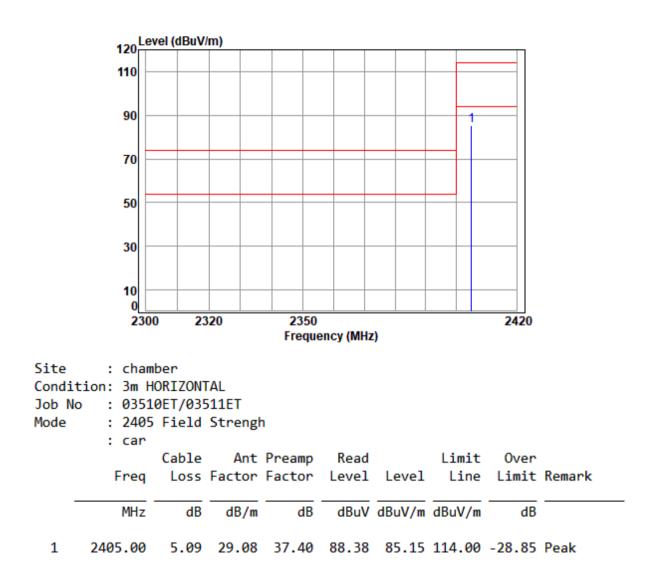
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Test Mode: 01; Polarity: Horizontal; Modulation:GFSK; Channel:Low





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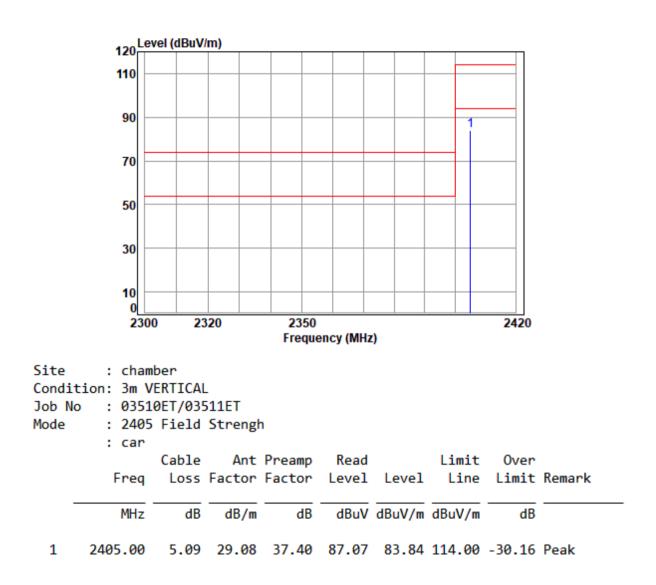
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Test Mode: 01; Polarity: Vertical; Modulation:GFSK; Channel:Low





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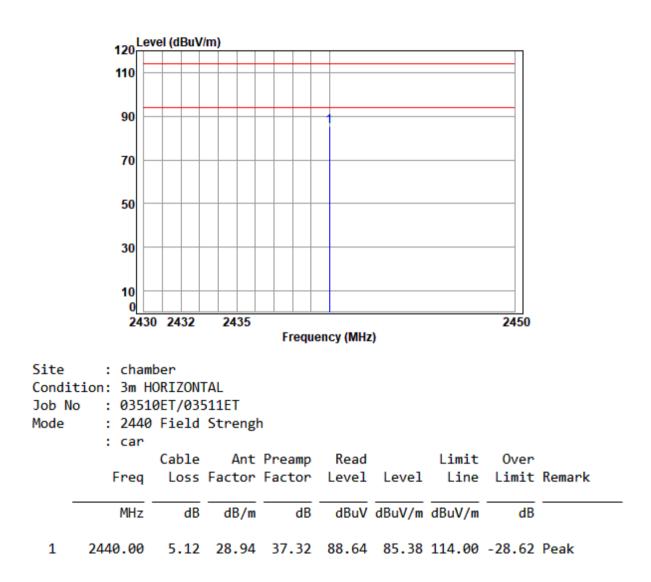
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Test Mode: 01; Polarity: Horizontal; Modulation:GFSK; Channel:middle





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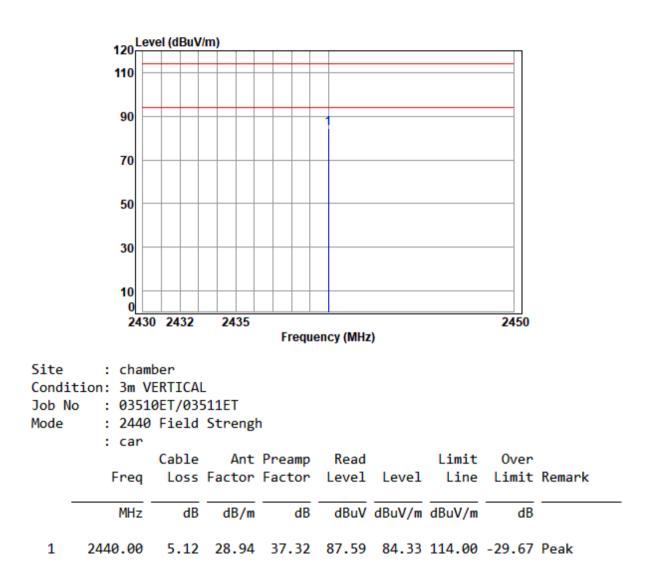
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Test Mode: 01; Polarity: Vertical; Modulation:GFSK; Channel:middle





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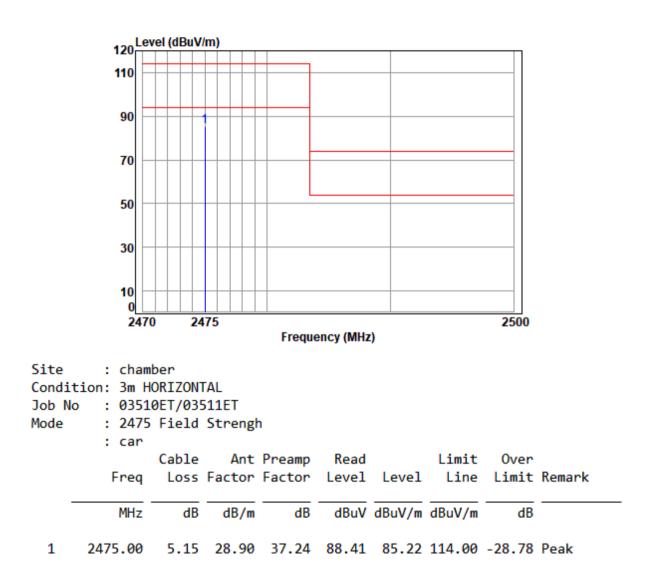
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Test Mode: 01; Polarity: Horizontal; Modulation:GFSK; Channel:High





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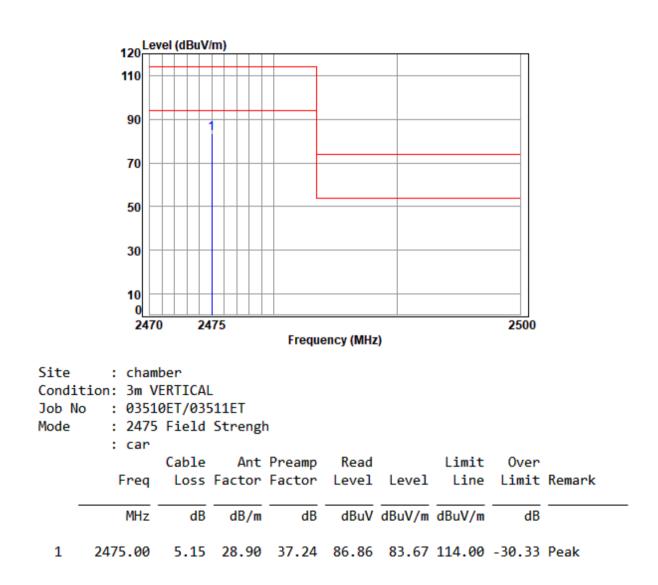
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Test Mode: 01; Polarity: Vertical; Modulation:GFSK; Channel:High



Remark:

1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

2) The peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20dB under any condition of modulation. So, only the above measurement data were shown in the report.



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7.3 Restricted Band Around Fundamental Frequency

47 CFR Part 15, Subpart C 15.205 & 15.249(d) & 15.209 **Test Requirement** Test Method: ANSI C63.10 (2013) Section 6.10.5 Measurement Distance: 3m

Limit:

Limit (dBuV/m @3m)	Remark
40.0	Quasi-peak Value
43.5	Quasi-peak Value
46.0	Quasi-peak Value
54.0	Quasi-peak Value
54.0	Average Value
74.0	Peak Value
	40.0 43.5 46.0 54.0 54.0

Emission radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209.whichever is the lesser attenuation.

7.3.1 E.U.T. Operation

Operating Environ	iment:					
Temperature:	22.3 °C	Humidity:	52.6 % RH	Atmospheric Pressure:	1000	mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	TX mode_Keep the EUT(car) in transmitting with modulation mode.



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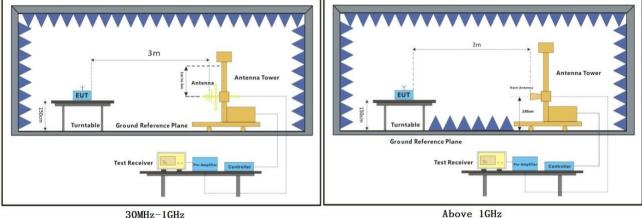
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7.3.3 Test Setup Diagram



7.3.4 Measurement Procedure and Data

a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

h. Test the EUT in the lowest channel, the middle channel, the Highest channel.

i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.

j. Repeat above procedures until all frequencies measured was complete.

Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor



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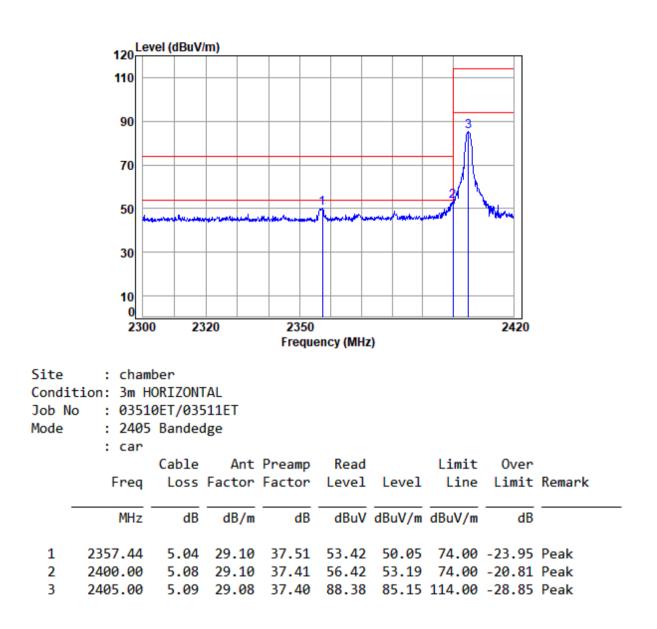
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Test Mode: 01; Polarity: Horizontal; Modulation:GFSK; Channel:Low





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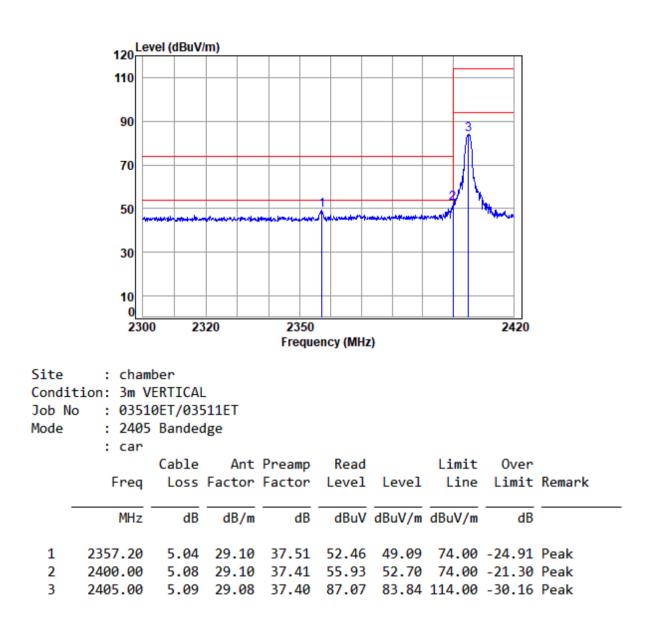
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Test Mode: 01; Polarity: Vertical; Modulation:GFSK; Channel:Low





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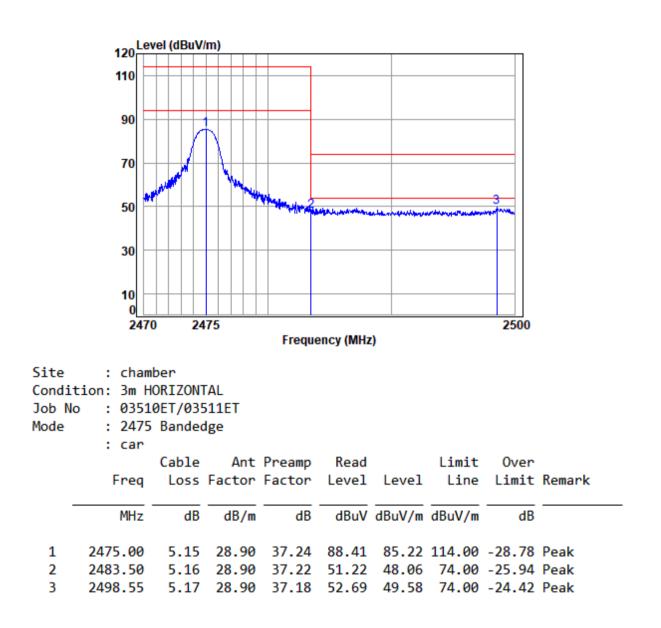
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Test Mode: 01; Polarity: Horizontal; Modulation:GFSK; Channel:High





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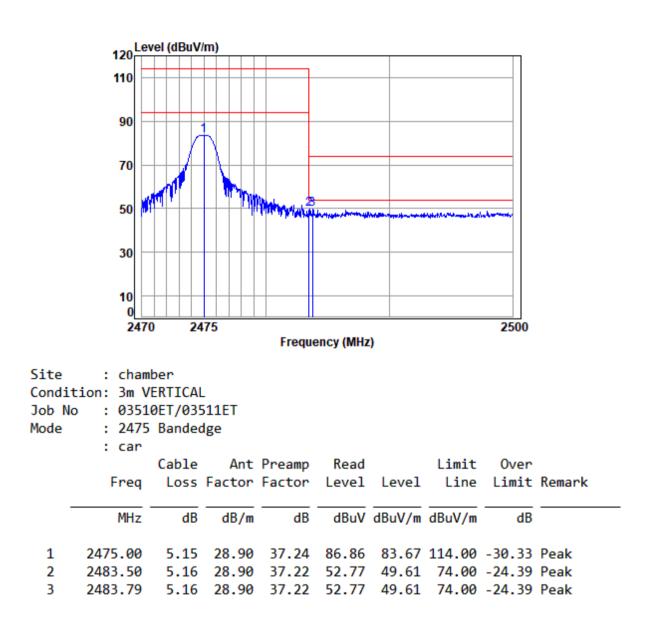
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Test Mode: 01; Polarity: Vertical; Modulation:GFSK; Channel:High





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7.4 Radiated Emissions Below 1GHz

Test Requirement	47 CFR Part 15, Subpart C 15.209 & 15.249 (a),(d)
Test Method:	ANSI C63.10 (2013) Section 6.4&6.5
Measurement Distance:	3m

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
960-1000	500	3

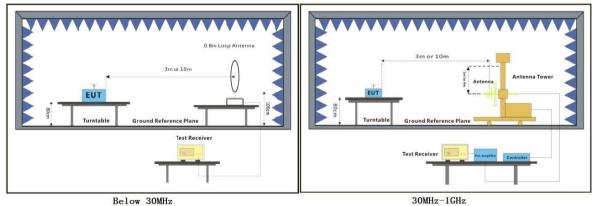
7.4.1 E.U.T. Operation

Operating Enviror	nment:					
Temperature:	23.5 °C	Humidity:	51.2 % RH	Atmospheric Pressure:	1000	mbar

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	TX mode_Keep the EUT(car) in transmitting with modulation mode.

7.4.3 Test Setup Diagram





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7.4.4 Measurement Procedure and Data

a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using quasi-peak method as specified and then reported in a data sheet.

g. Test the EUT in the lowest channel, the middle channel, the Highest channel.

h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.

i. Repeat above procedures until all frequencies measured was complete.

Remark:

1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

2. Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.



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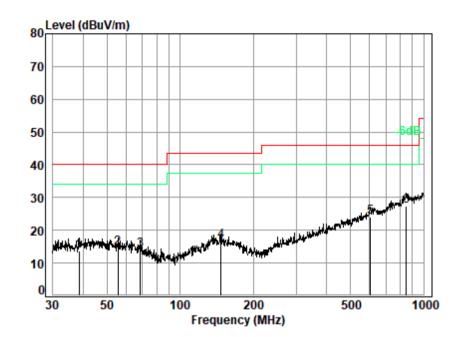
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Test Mode: 01; Polarity: Horizontal



Site :	chamber		
Condition:	3m HORIZONTAL		

Job	No	03510FT	/03511ET
500	110	ODDIOLI	/ 0)) 1 1 1 1

· 01

Mode

oue	. 01								
		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	38.48	0.20	16.38	25.88	22.90	13.60	40.00	-26.40	QP
2	55.61	0.23	17.24	25.85	23.09	14.71	40.00	-25.29	QP
3	68.63	0.28	16.23	25.83	23.45	14.13	40.00	-25.87	QP
4	146.89	0.87	17.43	25.56	24.11	16.85	43.50	-26.65	QP
5	605.66	2.12	24.45	26.79	24.25	24.03	46.00	-21.97	QP
6	851.04	2.95	27.69	26.49	23.27	27.42	46.00	-18.58	QP



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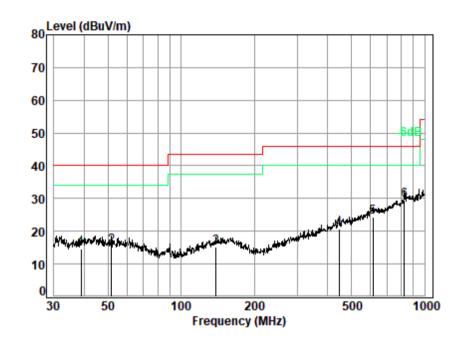
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Test Mode: 01; Polarity: Vertical



Site :	chamber
Condition:	3m VERTICAL
Job No :	03510ET/03511ET

· 01

Mode

oue	. 01									
		Cable	Ant	Preamp	Read		Limit	0ver		
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark	
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1	38.89	0.20	16.47	25.88	23.90	14.69	40.00	-25.31	QP	
2	51.84	0.22	17.30	25.86	23.87	15.53	40.00	-24.47	QP	
3	138.87	0.91	17.35	25.59	22.56	15.23	43.50	-28.27	QP	
4	444.85	1.47	21.63	26.07	23.67	20.70	46.00	-25.30	QP	
5	614.21	2.11	24.58	26.78	24.39	24.30	46.00	-21.70	QP	
6	827.49	2.83	27.71	26.54	25.46	29.46	46.00	-16.54	QP	



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7.5 Radiated Emissions Above 1GHz

Test Requirement	47 CFR Part 15, Subpart C 15.209 & 15.249 (a),(d)
Test Method:	ANSI C63.10 (2013) Section 6.6
Measurement Distance:	3m

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)		
Above 1000	500	3		

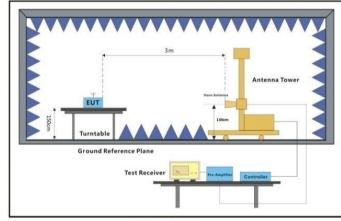
7.5.1 E.U.T. Operation

Operating Enviro	onment:					
Temperature:	22.3 °C	Humidity:	52.6 % RH	Atmospheric Pressure:	1000	mbar

7.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	TX mode_Keep the EUT(car) in transmitting with modulation mode.

7.5.3 Test Setup Diagram



Above 1GHz



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7.5.4 Measurement Procedure and Data

a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak or average method as specified and then reported in a data sheet.

g. Test the EUT in the lowest channel, the middle channel, the Highest channel.

h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.

i. Repeat above procedures until all frequencies measured was complete.

Remark:

1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

2. Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

3. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.



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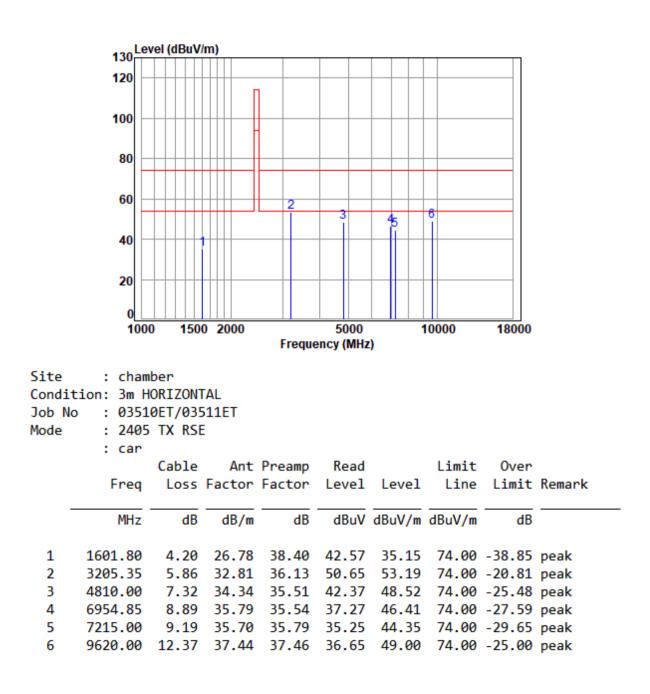
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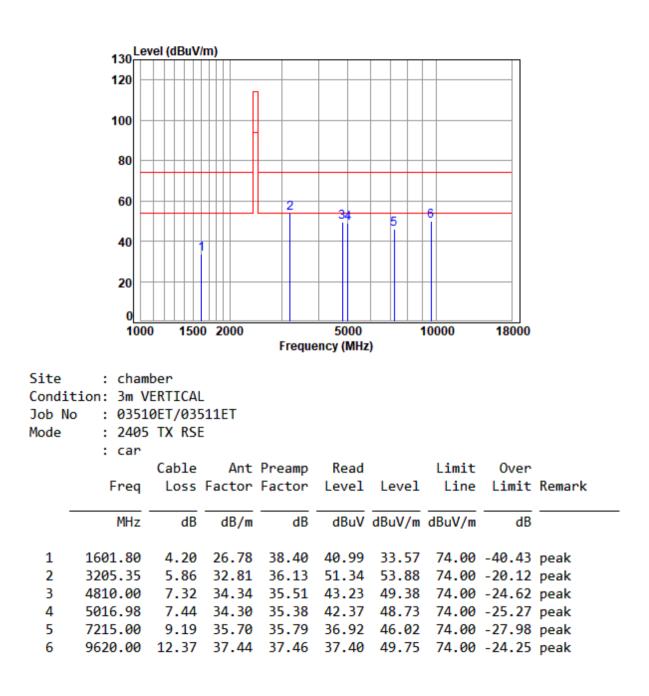
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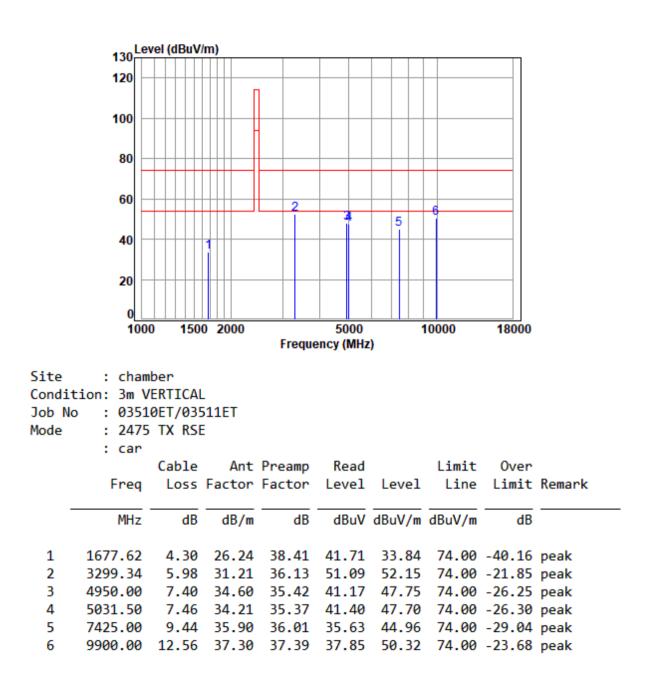
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Test Setup Photo 8

Refer to Appendix - Test Setup Photo for SZCR2311003510ET(car)

EUT Constructional Details (EUT Photos) 9

Refer to Appendix - external and internal photos for SZCR2311003510ET(car)

- End of the Report -



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