



TEST REPORT

Reference No. : WTD23D12265325W006
Manufacturer* : Coolr Group Inc
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Factory 1 : Suga Electronics (Dongguan) Co.,Ltd.
Address : Suga High-tech Industrial Park, No.8 Fulong Road, Sanzhong village,
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Factory 2 : Suga International (Vietnam) Company Limited
Address : Lo so CN11-3, Que Vo 3 Industrial Park, Que Tan Commune, Que Vo
District, Bac Ninh Province, Vietnam
Product : VistaZ
Model(s) : CVZ-0303, CVL-0303
Standards : ETSI EN 301 908-1 V15.1.1 (2021-09)
ETSI EN 301 908-13 V13.2.1 (2022-02)
Date of Receipt sample : 2023-12-14
Date of Test : 2023-12-21 to 2024-01-16
Date of Issue : 2024-01-23
Test Result : **Pass**

Remarks:

1. The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.
2. “*” **manufacturer** means any natural or legal person who manufactures radio equipment or has radio equipment designed or manufactured, and markets that equipment under his name or trade mark.

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3 Revision History

Test Report No.	Date of Receipt sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTD23D12265325W006	2023-12-14	2023-12-21 to 2024-01-16	2024-01-23	Original	-	Valid

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4 General Information

4.1 General Description of E.U.T.

Product:	VistaZ
Model(s):	CVZ-0303, CVL-0303
Model Description:	Only the model name and cellular modular are different. The model CVZ-0303 with cellular modular. The model CVL-0303 without cellular modular. The test sample model was CVZ-0303.
LTE Band(s):	LTE-CAT M1 Band 1/3
Hardware Version:	V01 Rev 0.02
Software Version:	v17.1

4.2 Details of E.U.T.

Operation Frequency:	LTE-CAT M1 Band 1: Tx: 1920-1980MHz, Rx: 2110-2170MHz LTE-CAT M1 Band 3: Tx: 1710-1785MHz, Rx: 1805-1880MHz
Max. RF output power:	LTE Band 1: 20.99dBm LTE Band 3: 21.35dBm
Type of Modulation:	QPSK, 16QAM
Antenna installation:	Dipole Antenna
Antenna Gain:	4.84dBi
Note:	#: The antenna gain is provided by the applicant, and the applicant should be responsible for its authenticity, WALTEK lab has not verified the authenticity of its information.
Ratings:	DC 3.7V by battery
Battery:	DC 3.7V, 2500mAh, 9.25Wh



5 Test Summary

RF PART		
Test Items	Test Requirement	Result
Radiated emissions(UE)	ETSI EN 301 908-1	PASS
Control and monitoring functions(UE)	ETSI EN 301 908-1	PASS*
Transmitter maximum output power	ETSI EN 301 908-13	PASS*
Transmitter spectrum emission mask	ETSI EN 301 908-13	PASS*
Transmitter spurious emission	ETSI EN 301 908-13	PASS
Transmitter minimum output power	ETSI EN 301 908-13	PASS*
Receiver adjacent channel selectivity(ACS)	ETSI EN 301 908-13	PASS*
Receiver blocking characteristics	ETSI EN 301 908-13	PASS*
Receiver spurious response	ETSI EN 301 908-13	PASS*
Receiver intermodulation characteristics	ETSI EN 301 908-13	PASS*
Receiver Reference Sensitivity Level	ETSI EN 301 908-13	PASS*
Receiver spurious emission	ETSI EN 301 908-13	PASS*
Transmitter adjacent channel leakage power ratio (ACLR)	ETSI EN 301 908-13	PASS*
Remark: N/A: Not Applicable RF: In this whole report RF means Radio Frequency. *: The test result refer to the report R2304A0458-R2.		



6 Equipment Used during Test

6.1 Equipments List

3m Semi-anechoic Chamber for Radiation						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1.	Spectrum Analyzer	R&S	FSP30	100091	2023-04-24	2024-04-23
2.	Amplifier	Agilent	8447D	2944A10178	2023-07-27	2024-07-26
3.	Trilog Broadband Antenna	SCHWARZBECK	VULB9163	336	2023-08-07	2024-08-06
4.	Coaxial Cable (below 1GHz)	Top	TYPE16(13M)	-	2023-04-24	2024-04-23
5.	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	2023-02-02	2024-02-01
6.	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	2023-08-08	2024-08-07
7.	Coaxial Cable (above 1GHz)	ZT26-NJ-NJ-8M/FA	1GHz-18GHz	NA	2023-02-02	2024-02-01
8.	Fading Simulator	R&S	ABFS	100172	2023-04-24	2024-04-23
9.	ESG VECTOR SIGNAL GENERATOR	Malaysia Keysight	E4438C	MY45092536	2023-04-24	2024-04-23
10.	Universal Radio Communication Tester	R&S	CMU 200	114798	2023-07-27	2024-07-26

6.2 Description of Support Units

Equipment	Manufacturer	Model No.	Series No.
/	/	/	/



6.3 Measurement Uncertainty

Parameter	Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±0.42dB
Power Spectral Density, conducted	±0.7dB
Unwanted Emissions, conducted	±2.76dB
Time	±5%
Duty Cycle	±5%
Temperature	±1°C
Humidity	±2%
DC and low frequency voltages	±0.1%
Conduction disturbance(150kHz~30MHz)	±3.64dB
Radiated Emission(30MHz~1GHz)	±4.53dB
Radiated Emission(1GHz~6GHz)	±5.03dB

6.4 Test Mode

All test mode(s) and condition(s) mentioned were considered and evaluated respectively by performing full tests, the worst data were recorded and reported.

RF Part

Test Mode		Channel Frequency	Channel Number
Tx/Idle	LTE Band 1	1922.5 MHz	18025
		1950.0 MHz	18300
		1977.5 MHz	18575
	LTE Band 3	1712.5 MHz	19225
		1747.5 MHz	19575
		1782.5 MHz	19925
Rx	LTE Band 1	N/A	N/A
	LTE Band 3	N/A	N/A



7 RF Requirements

1. Normal Test Conditions:

Ambient Condition: 21 °C to 55 %RH

2. Extreme Test Conditions:

Extreme Temperature: -20°C to +50°C

Extreme Power Source Voltages:

Power source	Lower extreme	Higher extreme	Normal condition
AC mains	0.9	1.1	1.0
Regulated lead acid battery	0.9	1.3	1.1
Leclanché battery	0.85	1.0	1.0
Lithium battery	0.95	1.1	1.1
Mercury/nickel cadmium battery	0.9	1.0	1.0

The follow condition is applicable:

Test Conditions	Normal	LTLV	LTHV	HTHV	HTLV
Temperature (°C)	21	-20	-20	50	50
Voltage (VDC)	4.07	3.52	4.07	4.07	3.52



7.1 Radiated emissions (UE)

7.1.1 Definition

This test assesses the ability of radio communications equipment and ancillary equipment to limit unwanted emissions from the enclosure port.

This test is applicable to radio communications equipment and ancillary equipment.

This test shall be performed on the radio communications equipment and/or a representative configuration of the ancillary equipment.

7.1.2 Requirement and Limit

The frequency boundary and reference bandwidths for the detailed transitions of the limits between the requirements for out of band emissions and spurious emissions are based on ITU-R Recommendations SM.329-10 [3] and SM.1539-1 [4].

The requirements shown in the following table are only applicable for frequencies in the spurious domain.

Frequency	Minimum requirement (e.r.p.)/ reference bandwidth idle mode	Minimum requirement (e.r.p.)/ reference bandwidth traffic mode	Applicability
$30 \text{ MHz} \leq f < 1\,000 \text{ MHz}$	-57 dBm/100 kHz	-36 dBm/100 kHz	All
$1 \text{ GHz} \leq f < 12.75 \text{ GHz}$	-47 dBm/1 MHz	-30 dBm/1 MHz	All
$f_c - 2.5 \times 5 \text{ MHz} < f < f_c + 2.5 \times 5 \text{ MHz}$		Not defined	UTRA FDD, UTRA TDD, 3.84 Mcps option, cdma2000, spreading rate 3
$f_c - 2.5 \times BW_{\text{Channel}} \text{ MHz} < f < f_c + 2.5 \times BW_{\text{Channel}} \text{ MHz}$		Not defined	E-UTRA FDD, E-UTRA TDD, UMB
$f_c - 2.5 \times 10 \text{ MHz} < f < f_c + 2.5 \times 10 \text{ MHz}$		Not defined	UTRA TDD, 7.68 Mcps option
$f_c - 4 \text{ MHz} < f < f_c + 4 \text{ MHz}$		Not defined	UTRA TDD, 1.28 Mcps option cdma2000, spreading rate 1
$f_c - 500 \text{ kHz} < f < f_c + 500 \text{ kHz}$		Not defined	UWC 136, 200 kHz option
$f_c - 250 \text{ kHz} < f < f_c + 250 \text{ kHz}$		Not defined	UWC 136, 30 kHz option

NOTE: f_c is the UE transmit centre frequency.

7.1.3 EUT Operation Condition

The EUT was programmed to be in continuously transmitting mode.



7.1.4 Test Method

Whenever possible the test site should be a fully anechoic chamber simulating the free-space conditions. EUT shall be placed on a non-conducting support. Mean power of any spurious components shall be detected by the test antenna and measuring receiver (e.g. a spectrum analyser).

At each frequency at which a component is detected, the EUT shall be rotated to obtain maximum response, and the effective radiated power (e.r.p.) of that component determined by a substitution measurement, which shall be the reference method. The measurement shall be repeated with the test antenna in the orthogonal polarization plane.

NOTE: Effective radiated power (e.r.p.) refers to the radiation of a half wave tuned dipole instead of an isotropic

antenna. There is a constant difference of 2,15 dB between e.i.r.p. and e.r.p.

$$\text{e.r.p. (dBm)} = \text{e.i.r.p. (dBm)} - 2,15 \text{ (ITU-R Recommendation SM.329-10 [3], annex 1).}$$

Measurements are made with a tuned dipole antenna or a reference antenna with a known gain referenced to an

isotropic antenna. Unless otherwise stated, all measurements are done as mean power (RMS).

If a different test site or method is used, this shall be stated in the test report. The results shall be converted to the

reference method values and the validity of the conversion shall be demonstrated.

Traffic Mode

Frequency range	Max. measure value (dBm)	Test result
30MHz to 1GHz	<-36	Pass
1GHz to 12.75GHz	<-30	Pass

Idle Mode

Frequency range	Max. measure value (dBm)	Test result
30MHz to 1GHz	<-57	Pass
1GHz to 12.75GHz	<-47	Pass

Measurement uncertainty	between 30 MHz and 180 MHz	+/-5.0dB
	between 180 MHz and 12,75 GHz	+/-3.0dB

Please refer to the following test data



7.1.5 Measurement Record

LTE Band 1

Idle Mode

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Substituted			Absolute Level	Result	
			Height	Polar	SG Level	Cable	Antenna Gain		Limit	Margin
(MHz)	(dBμV)	Degree	(m)	(H/V)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)
362.58	39.47	360	1.7	H	-69.52	0.15	0.00	-69.67	-57	-12.67
362.58	39.43	235	1.8	V	-67.36	0.15	0.00	-67.51	-57	-10.51
1806.32	45.05	86	1.5	H	-68.72	2.40	7.50	-63.62	-47	-16.62
1806.32	47.86	318	1.2	V	-65.15	2.40	7.50	-60.05	-47	-13.05
Note: Absolute Level = SG Level - Cable Loss + Antenna Gain Margin = Absolute Level - Limit										

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Traffic Mode

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Substituted			Absolute Level	Result	
			Height	Polar	SG Level	Cable	Antenna Gain		Limit	Margin
(MHz)	(dBμV)	Degree	(m)	(H/V)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)
Low Channel(1922.5MHz)										
275.36	58.32	314	1.2	H	-51.79	0.15	0.00	-51.94	-36	-15.94
275.36	58.72	328	1.3	V	-48.74	0.15	0.00	-48.89	-36	-12.89
3845.00	52.26	284	1.2	H	-58.59	2.40	7.50	-53.49	-30	-23.49
3845.00	54.19	22	1.2	V	-55.12	2.40	7.50	-50.02	-30	-20.02
5767.50	53.50	306	1.7	H	-55.59	2.88	10.40	-48.07	-30	-18.07
5767.50	55.45	255	1.8	V	-52.95	2.88	10.40	-45.43	-30	-15.43
Middle Channel(1950.0MHz)										
275.36	58.89	41	1.1	H	-51.22	0.15	0.00	-51.37	-36	-15.37
275.36	58.46	276	1.9	V	-49.00	0.15	0.00	-49.15	-36	-13.15
3900.00	52.49	270	1.9	H	-58.68	2.42	7.50	-53.60	-30	-23.60
3900.00	54.17	226	1.4	V	-55.55	2.42	7.50	-50.47	-30	-20.47
5850.00	52.82	49	1.9	H	-55.65	2.90	10.40	-48.15	-30	-18.15
5850.00	55.64	247	1.4	V	-52.60	2.90	10.40	-45.10	-30	-15.10
High Channel(1977.5MHz)										
275.36	57.91	124	1.6	H	-52.20	0.15	0.00	-52.35	-36	-16.35
275.36	58.81	148	1.5	V	-48.65	0.15	0.00	-48.80	-36	-12.80
3955.00	51.78	47	1.9	H	-59.71	2.47	7.50	-54.68	-30	-24.68
3955.00	53.87	13	1.1	V	-56.26	2.47	7.50	-51.23	-30	-21.23
5932.50	52.25	137	1.6	H	-56.22	2.92	12.90	-46.24	-30	-16.24
5932.50	54.29	288	1.2	V	-53.95	2.92	12.90	-43.97	-30	-13.97
Note: Absolute Level = SG Level - Cable Loss + Antenna Gain Margin = Absolute Level - Limit										



LTE Band 3

Idle Mode

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Substituted			Absolute Level	Result	
			Height	Polar	SG Level	Cable	Antenna Gain		Limit	Margin
(MHz)	(dBμV)	Degree	(m)	(H/V)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)
268.12	33.57	248	1.8	H	-75.42	0.15	0.00	-75.57	-57	-18.57
268.12	35.62	326	1.8	V	-71.17	0.15	0.00	-71.32	-57	-14.32
1885.47	47.69	29	1.5	H	-66.08	2.40	7.50	-60.98	-47	-13.98
1885.47	44.07	355	1.1	V	-68.94	2.40	7.50	-63.84	-47	-16.84
Note: Absolute Level = SG Level - Cable Loss + Antenna Gain Margin = Absolute Level - Limit										

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Traffic Mode

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Substituted			Absolute Level	Result	
			Height	Polar	SG Level	Cable	Antenna Gain		Limit	Margin
(MHz)	(dBμV)	Degree	(m)	(H/V)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)
Low Channel(1712.5MHz)										
374.69	51.97	121	2.0	H	-58.14	0.15	0.00	-58.29	-36	-22.29
374.69	51.79	61	1.7	V	-55.67	0.15	0.00	-55.82	-36	-19.82
3425.00	59.16	163	1.0	H	-53.89	2.40	7.50	-48.79	-30	-18.79
3425.00	56.18	298	1.9	V	-54.97	2.40	7.50	-49.87	-30	-19.87
5137.50	56.33	186	1.0	H	-53.08	2.88	10.40	-45.56	-30	-15.56
5137.50	57.70	188	1.6	V	-51.07	2.88	10.40	-43.55	-30	-13.55
Middle Channel(1747.5MHz)										
374.69	51.01	149	1.7	H	-59.10	0.15	0.00	-59.25	-36	-23.25
374.69	51.13	309	1.3	V	-56.33	0.15	0.00	-56.48	-36	-20.48
3494.00	59.86	167	1.5	H	-51.31	2.42	7.50	-46.23	-30	-16.23
3494.00	56.79	95	1.9	V	-52.93	2.42	7.50	-47.85	-30	-17.85
5242.50	57.16	57	1.1	H	-51.31	2.90	10.40	-43.81	-30	-13.81
5242.50	57.09	265	1.0	V	-51.15	2.90	10.40	-43.65	-30	-13.65
High Channel(1782.5MHz)										
374.69	51.32	99	1.6	H	-58.79	0.15	0.00	-58.94	-36	-22.94
374.69	51.05	183	2.0	V	-56.41	0.15	0.00	-56.56	-36	-20.56
3565.00	59.54	142	1.9	H	-51.95	2.47	7.50	-46.92	-30	-16.92
3565.00	57.62	312	1.3	V	-52.51	2.47	7.50	-47.48	-30	-17.48
5347.50	57.56	262	1.4	H	-50.91	2.92	12.90	-40.93	-30	-10.93
5347.50	56.16	275	1.3	V	-52.08	2.92	12.90	-42.10	-30	-12.10
Note: Absolute Level = SG Level - Cable Loss + Antenna Gain Margin = Absolute Level - Limit										



8 Photographs of test setup and EUT.

Note: Please refer to appendix: Appendix-CVZ-0303-Photos.

=====End of Report=====

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