





#### **FCC Radio Test Report**

FCC ID: 2A22Z-W314

This report concerns: Original Grant

**Project No.** : 2308C213

**Equipment**: Botslab PT 4G LTE Cellular Camera

Brand Name : Botslab Test Model : W314

Series Model: W314lite, W314pro, W314s

**Applicant**: Botslab,Inc.

Address : 919 North Market Street, Suite 950, Wilmington, New Castle, Delaware,

USA

Manufacturer : Botslab,Inc.

Address : 919 North Market Street, Suite 950, Wilmington, New Castle, Delaware,

USA

Date of Receipt : Dec. 01, 2023

**Date of Test** : Dec. 19, 2023 ~ Dec. 21, 2023

**Issued Date** : Dec. 26, 2023

Report Version : R00

China.

Test Sample : Engineering Sample No.: DG20231201107

Standard(s) : 47 CFR FCC Part 24 Subpart E

47 CFR FCC Part 2

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.

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#### **Declaration**

**BTL** represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with standards traceable to international standard(s) and/or national standard(s).

**BTL**'s reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **BTL** issued reports.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

This report is the confidential property of the client. As a mutual protection to the clients, the public and ourselves, the test report shall not be reproduced, except in full, without our written approval.

**BTL**'s laboratory quality assurance procedures are in compliance with the ISO/IEC 17025: 2017 requirements, and accredited by the conformity assessment authorities listed in this test report.

BTL is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

#### Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.



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#### **REPORT ISSUED HISTORY**

Report No.	Version	Description	Issued Date	Note
BTL-FCCP-2-2308C213	R00	Original Report.	Dec. 26, 2023	Valid



#### 1. APPLICABLE STANDARDS

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards: ANSI C63.26-2015

The following reference test guidance is not within the scope of accreditation of NVLAP:

ANSI/TIA/EIA-603-E-2016

KDB 971168 D01 Power Meas License Digital Systems v03r01

#### 2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC Part 24 Subpart E & Part 2					
Standard(s) Section	Judgment	Remark			
2.1046 24.232(c)	Equivalent Isotropic Radiated Power	PASS	Note (2)		
2.1049	Occupied Bandwidth	PASS	Note (2)		
2.1051 24.238(a)	Conducted Spurious Emissions	PASS	Note (2)		
2.1053 24.238(a)	Radiated Spurious Emissions	PASS			
24.238(a)	Band Edge Measurements	PASS	Note (2)		
24.232(d)	Peak To Average Ratio	PASS	Note (2)		
2.1055 24.235	Frequency Stability	PASS	Note (2)		

#### Note:

- (1) "N/A" denotes test is not applicable in this test report.
- (2) The test results please refer to the test report No: CN23AZPG 001.



#### 2.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of Room 108, Building 2, No. 1, Yile Road, Songshan Lake Zone, Dongguan City, Guangdong 523000.

#### 2.2 MEASUREMENT UNCERTAINTY

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

The BTL measurement uncertainty as below table:

#### A. Radiated Measurement:

Test Site	Method	Measurement Frequency Range	U,(dB)
SSL-CB01	CISPR	9kHz ~ 30MHz	2.74

Test Site	Method	Measurement Frequency Range	Ant. H / V	U,(dB)
		30MHz ~ 200MHz	V	4.70
		30MHz ~ 200MHz	Н	3.56
SSL-CB01 CISPR		200MHz ~ 1,000MHz	V	4.92
	CISPR	200MHz ~ 1,000MHz	Τ	4.54
		1GHz ~ 6GHz	-	4.56
		6GHz ~ 18GHz	-	5.14
		18GHz ~ 26.5GHz	-	3.30

Note: Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

#### 2.3 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Test Voltage	Tested By
Radiated Spurious Emissions (9 kHz to 30 MHz)	25°C	60%	DC 3.6V	Brand Duan
Radiated Spurious Emissions (30 MHz to 1000 MHz)	24°C	44 ~ 45%	DC 3.6V	Brand Duan
Radiated Spurious Emissions (Above 1000 MHz)	24°C	44 ~ 45%	DC 3.6V	Brand Duan



#### 3. GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

Equipment	Botslab PT 4G LTE Cellular Camera	
Brand Name	Botslab	
Test Model	W314	
Series Model	W314lite, W314pro, W314s	
Model Difference(s)	Only differ in model name.	
Hardware Version	W314	
Software Version	3.4.23	
Power Source	1# Supplied from battery.  Model: 1INR19/66-4 2# Supplied from Type-C port.	
Power Rating	1# DC 3.6V, 9180mAh, 33.1Wh 2# DC 5V	
IMEI No.	868105045956982	
Modulation Type	WCDMA/HSDPA/HSUPA	Uplink: QPSK,16QAM
Modulation Type	LTE	Uplink: QPSK,16QAM

#### Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

#### 2. Channel List:

WCDMA Band II						
Test Frequency ID	UARFCN	Frequency of Uplink (MHz)	UARFCN	Frequency of Downlink (MHz)		
Low Range	9262	1852.4	9662	1932.4		
Mid Range	9400	1880.0	9800	1960.0		
High Range	9538	1907.6	9938	1987.6		

	LTE Band 2						
Test Frequency ID	Bandwidth (MHz)	NuL	Frequency of Uplink (MHz)	N <sub>DL</sub>	Frequency of Downlink (MHz)		
	1.4	18607	1850.7	607	1930.7		
	3	18615	1851.5	615	1931.5		
Low Bongo	5	18625	1852.5	625	1932.5		
Low Range	10	18650	1855	650	1935		
	15	18675	1857.5	675	1937.5		
	20	18700	1860	700	1940		
Mid Range	1.4/3/5/10/15/20	18900	1880	900	1960		
	1.4	19193	1909.3	1193	1989.3		
	3	19185	1908.5	1185	1988.5		
High Dongs	5	19175	1907.5	1175	1987.5		
High Range	10	19150	1905	1150	1985		
	15	19125	1902.5	1125	1982.5		
	20	19100	1900	1100	1980		



#### 3. Table for Filed Antenna:

Brand	P/N	Antenna Type	Connector	Gain (dBi)	Note
®	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	5	\/B	3.21	WCDMA Band II
英佳创	YJC-6C275-W03	Dipole	XD	3.21	LTE Band 2

Note: The antenna gain is provided by the manufacturer.



#### 3.2 DESCRIPTION OF TEST MODES

Following mode(s) is (were) found to be the worst case(s) and selected for the final test.

WCDMA BAND II MODE						
Test Item Available Channel Tested Channel Mode						
Radiated Spurious Emissions 9262 to 9538 9400 WCDMA						

LTE BAND 2 MODE								
Test Item	Test Item Available Channel Tested Channel Bandwidth Modulation Mode							
Radiated	18607 to 19193	18900	1.4 MHz	QPSK	1RB			
Spurious	18625 to 19175	18900	5MHz	QPSK	1RB			
Emissions	18700 to 19100	18900	20MHz	QPSK	1RB			



BLOCKDIGRAMSHOWINGTH	ECONFIGURATIONOFSYSTEMTESTED	
	EUT	

#### 3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.
-	-	-	-	-

Item	Cable Type	Shielded Type	Ferrite Core	Length	
-	-	-	-	-	



#### 4. TEST RESULT

#### 4.1 RADIATED SPURIOUS EMISSIONS MEASUREMENT

#### 4.1.1 LIMIT

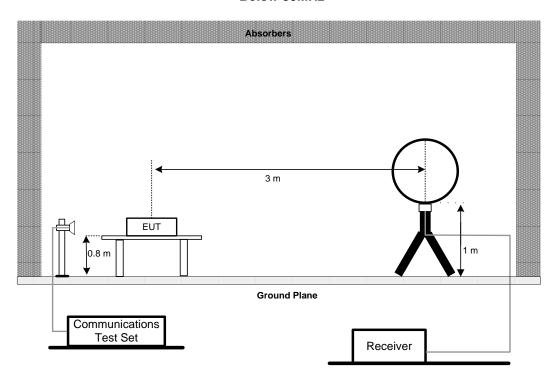
The power of any emission outside of theauthorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit equal to -13dBm. E (dB $\mu$ V/m) = EIRP (dBm) - 20 log D + 104.8; where D is the measurement distance in meters. The emission limit equal to 82.3dB $\mu$ V/m.

#### **4.1.2 TEST PROCEDURES**

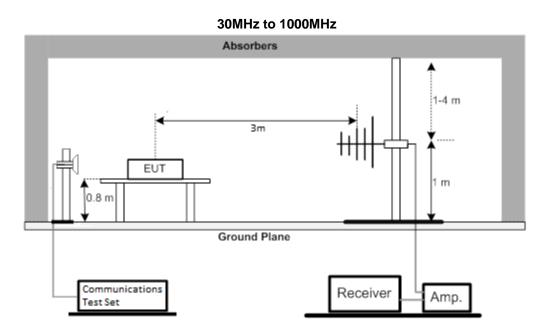
ANSI C63.26-2015 - Section 5.2.7 & 5.5.

#### **4.1.3 TEST SETUP LAYOUT**

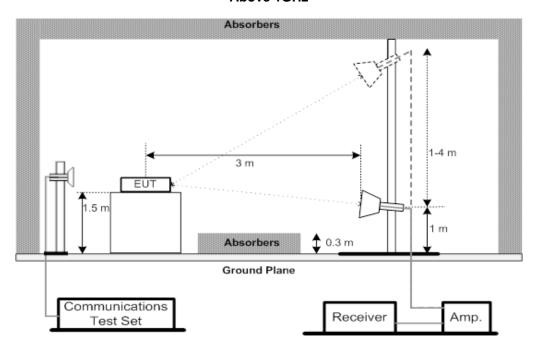
#### **Below 30MHz**







#### **Above 1GHz**



#### 4.1.4 TEST DEVIATION

No deviation.

#### 4.1.5 TEST RESULTS (9KHZ TO 30MHZ)

Please refer to the APPENDIX A.

#### 4.1.6 TEST RESULTS (30MHZ TO 1000MHZ)

Please refer to the APPENDIX B.

#### 4.1.7 TEST RESULTS (ABOVE 1000MHZ)

Please refer to the APPENDIX C.





#### **5. LIST OF MEASUREMENT EQUIPMENTS**

	Radiated Emissions - 9 kHz to 30 MHz							
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until			
1	Active Loop Antenna	Schwarzbeck	FMZB 1513-60	1513-60-025	Apr. 01, 2024			
2	MXE EMI Receiver	Keysight	N9038A	MY59050118	Feb. 10, 2024			
3	Cable	EMC INSTRUMENT	EMCCFD400-NM-NM-3000	N/A	Jun. 08, 2024			
4	Cable	EMC INSTRUMENT	EMCCFD400-NM-NM-7000	N/A	Jun. 08, 2024			
5	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A			
6	966 Chamber room	TaiHe	9*6*6 (NSA&VSWR)	N/A	Jan. 07, 2024			

	Radiated Emissions - 30 MHz to 1 GHz							
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until			
1	Trilog-Broadband Antenna	Schwarzbeck	VULB9168	01269	May 15, 2024			
2	Attenuator	EMC INSTRUMENT	EMCI-N-6-06	AN-N0697	May 15, 2024			
3	Preamplifier	EMC INSTRUMENT	EMC001330	980825	Feb. 10, 2024			
4	Cable	EMC INSTRUMENT	EMCCFD400-NM-NM-2500	N/A	Jun. 08, 2024			
5	Cable	EMC INSTRUMENT	EMCCFD400-NM-NM-7000	N/A	Jun. 08, 2024			
6	Cable	EMC INSTRUMENT	EMCCFD400-NM-NM-3000	N/A	Jun. 08, 2024			
7	MXE EMI Receiver	KEYSIGHT	N9038A	MY59050118	Feb. 10, 2024			
8	Positioning Controller	MF	MF-7802BS	N/A	N/A			
9	Max-Full Antenna Corp	MF	MFA-560BSN	N/A	N/A			
10	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A			
11	966 Chamber room	TaiHe	TaiHe 9*6*6 (NSA&VSWR) N/A Jan.					

	Radiated Emissions - Above 1 GHz							
Item	Kind of Equipment	nt Manufacturer Type No.			Calibrated until			
1	MXE EMI Receiver	Keysight	N9038A	MY59050118	Feb. 10, 2024			
2	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A			
3	Preamplifier	EMC INSTRUMENT	EMC118A45SE	980739	Feb. 10, 2024			
4	Cable	EMC INSTRUMENT	EMC104-SM-SM-10000	N/A	Jun. 08, 2024			
5	Cable	EMC INSTRUMENT			Jun. 08, 2024			
6	Cable	EMC INSTRUMENT	EMC104-SM-SM-800	N/A	Jun. 08, 2024			
7	Double Ridged Broadband Horn Antenna	RF SPIN	DRH18-E	210106A18E	Jul. 04, 2024			
8	Band Reject Filter	COM-MW	ZHPF6-C3000-18000-174	07213126	Jul. 07, 2024			
9	Band Reject Filter	COM-MW	ZHPF6-C1500-10000-1753 07213128		Jul. 07, 2024			
10	966 Chamber room	TaiHe	TaiHe 9*6*6 (NSA&VSWR) N/A Jan. 07, 202					

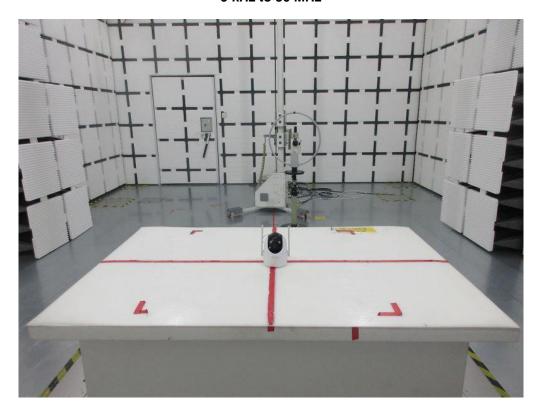
Remark: "N/A" denotes no model name, serial no. or calibration specified. All calibration period of equipment list is one year.

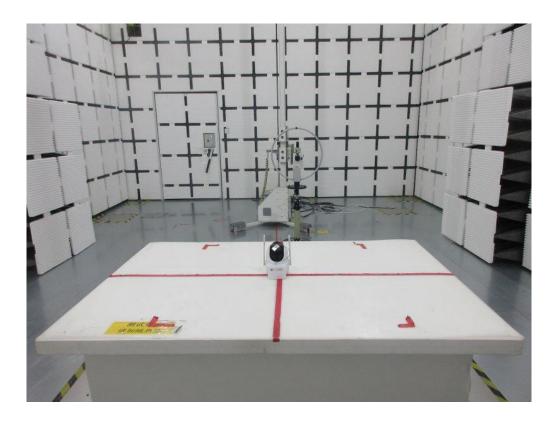


#### **6. EUT TEST PHOTO**

#### **Radiated Emissions Test Photos**

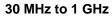
9 kHz to 30 MHz

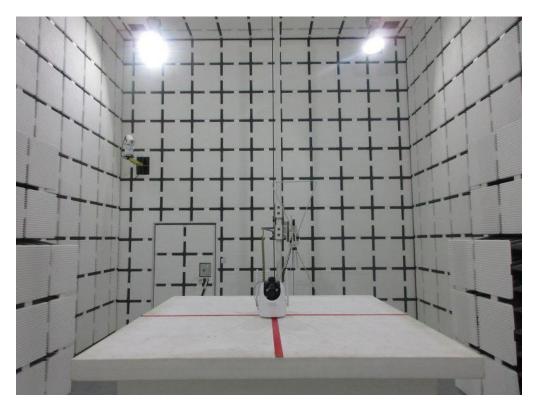


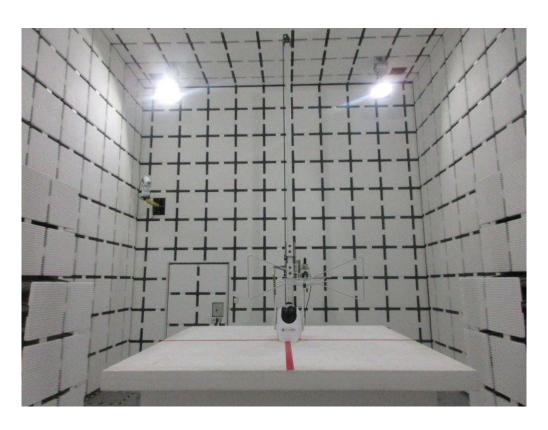




#### Radiated Emissions Test Photos





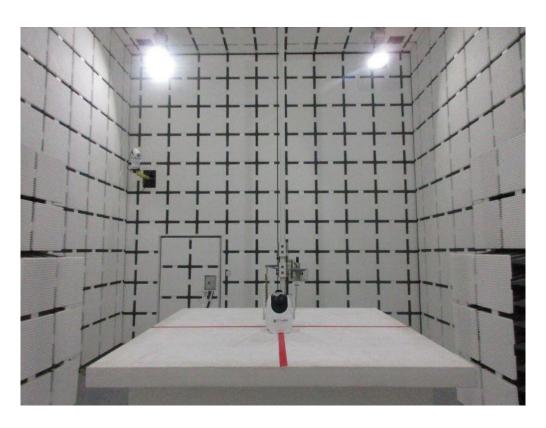




#### **Radiated Emissions Test Photos**

#### Above 1 GHz



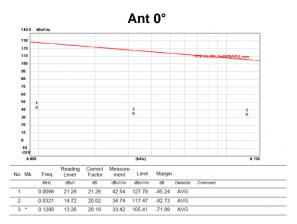




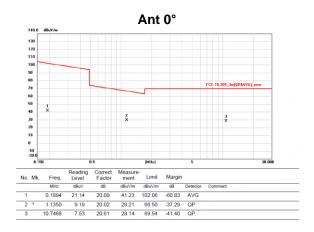
## APPENDIX A - RADIATED SPURIOUS EMISSIONS (9KHZ TO 30MHZ)



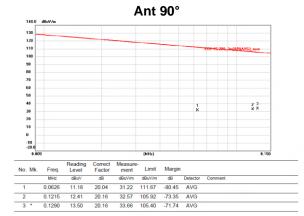
#### Test Mode : TX Mode



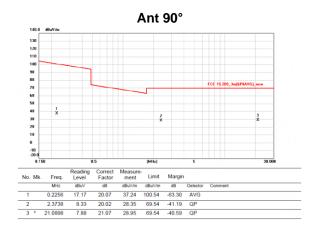
#### Test Mode : TX Mode



#### Test Mode : TX Mode



#### Test Mode : TX Mode





# APPENDIX B - RADIATED SPURIOUS EMISSIONS (30MHZ TO 1000MHZ)



#### Test Mode: WCDMA Band II\_TX CH9400

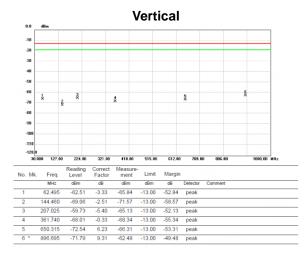
#### 

#### Test Mode: WCDMA Band II\_TX CH9400

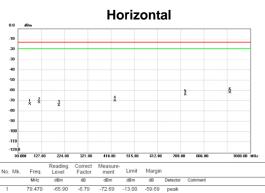


No.	Mk.	Freq.	Level	Factor	ment	Limit	Margin		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1		88.200	-50.15	-8.02	-58.17	-13.00	-45.17	peak	
2		153.675	-59.65	-2.11	-61.76	-13.00	-48.76	peak	
3		190.050	-54.93	-4.68	-59.61	-13.00	-46.61	peak	
4 1	*	300.145	-46.88	-1.66	-48.54	-13.00	-35.54	peak	
5		480.080	-65.08	2.72	-62.36	-13.00	-49.36	peak	
6		818 125	-71 73	8 66	-63 07	-13.00	-50.07	peak	

#### Test Mode: LTE Band 2\_TX CH18900\_1.4MHz



#### Test Mode: LTE Band 2\_TX CH18900\_1.4MHz

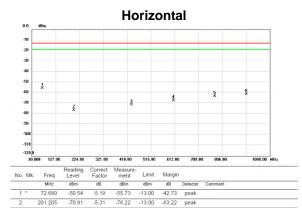




#### Test Mode: LTE Band 2\_TX CH18900\_5MHz

# 

#### Test Mode: LTE Band 2\_TX CH18900\_5MHz



-13.00 -54.11 peak

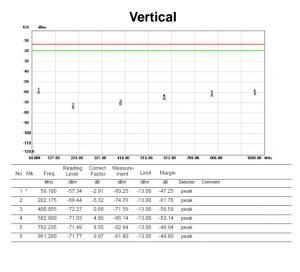
-63.28 -13.00 -50.28 peak -61.39 -13.00 -48.39 peak

607.150

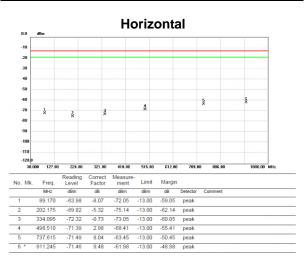
-72.60 5.49 -67.11

# Mrkz d8m d4m d7m d7m d8m d8m</t

#### Test Mode: LTE Band 2\_TX CH18900\_20MHz



#### Test Mode: LTE Band 2\_TX CH18900\_20MHz





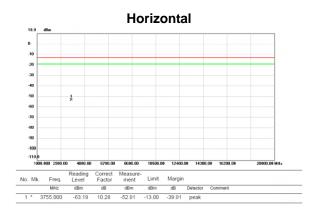
## APPENDIX C - RADIATED SPURIOUS EMISSIONS (ABOVE 1000MHZ)



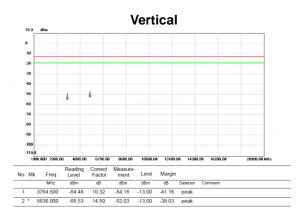
#### Test Mode: WCDMA Band II\_TX CH9400

# 

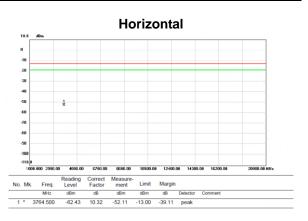
#### Test Mode: WCDMA Band II\_TX CH9400



#### Test Mode: LTE Band 2\_TX CH18900\_1.4MHz



#### Test Mode: LTE Band 2\_TX CH18900\_1.4MHz



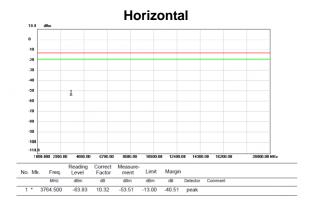




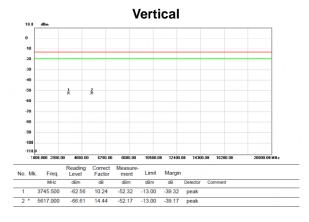
#### Test Mode: LTE Band 2\_TX CH18900\_5MHz

## **Vertical** -110,0 1000,000 2990,00 4090,00 6790,00 6690,00 10500,00 12400,00 14300,00 16200,00 No. Mk. Freq. Reading Level Correct Measurement Limit Margin MHz dBin dB dB dBm dB dB Delector 1 \* 4325.000 -68.47 12.11 -54.36 -13.00 -41.36 peak

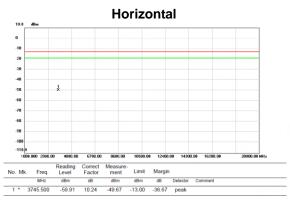
#### Test Mode: LTE Band 2\_TX CH18900\_5MHz



#### Test Mode: LTE Band 2\_TX CH18900\_20MHz



#### Test Mode: LTE Band 2\_TX CH18900\_20MHz



**End of Test Report**