

FCC Radio Test Report FCC ID: X4YTRNTY3G

This report concerns (check one): ⊠Original Grant □Class II Change

Project No. : 1510C002

Equipment : 3G/4G TRINITY PORTABLE SIM-BASED WI-FI

HOTSPOT

Model Name : ARNPR3G5U1

: NEXXT SOLUTIONS Applicant

Address : 3505 N.W 107TH AVE, MIAMI, FL, 33178

Date of Receipt : Oct. 08, 2015

Date of Test : Oct. 08, 2015 ~ Nov. 02, 2015 | Issued Date : Nov. 03, 2015 | BTL Inc.

Technical Engineer

Authorized Signatory

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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 the standards traceable to National Measurement Laboratory (**NML**) of **R.O.C.**, or National Institute of Standards and Technology (**NIST**) of **U.S.A.**

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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.

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REPORT ISSUED HISTORY

Issued No.	Description	Issued Date
BTL-FCCP-5-1510C002	Original Issue.	Nov. 03, 2015

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1. CERTIFICATION

Equipment : 3G/4G TRINITY PORTABLE SIM-BASED WI-FI HOTSPOT

Brand Name: NEXXT

Model Name: ARNPR3G5U1

Applicant : NEXXT SOLUTIONS Manufacturer : NEXXT SOLUTIONS

Address : 3505 N.W 107TH AVE, MIAMI, FL, 33178

Date of Test : Oct. 08, 2015 ~ Nov. 02, 2015

Test Sample: Engineering Sample

Standard(s): 47 CFR FCC Part 22 Subpart H

47 CFR FCC Part 2 & ANSI/TIA-603-D-2004

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

The test data, data evaluation, and equipment configuration contained in our test report (Ref No. BTL-FCCP-5-1510C002) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of TAF according to the ISO-17025 quality assessment standard and technical standard(s).

Test result included in this report is only for the WCDMA Band V approvalpart of the product.

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2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC Part 22 Subpart H& Part 2						
Standard(s) Section FCC	Test Item	Judgment	Remark			
2.1046 22.913(a)	Radiated power	PASS				
2.1049(h) 22.917(a)	Occupied Bandwidth	PASS				
2.1051 22.917(a)	Conducted Spurious Emissions	PASS				
2.1053 22.917(a)	Radiated Spurious Emissions	PASS				
22.917(a)	Band Edge Measurements	PASS				
2.1055 22.355	Frequency Stability	PASS				

NOTE:

(1)" N/A" denotes test is not applicable to this device.

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2.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No.3, Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China.

BTL's test firm number for FCC: 319330

2.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. The BTL measurement uncertainty is less than the CISPR 16-4-2 U_{cispr} requirement.

The reported uncertainty of measurement $\mathbf{y} \pm \mathbf{U}$, where expanded uncertainty \mathbf{U} is based on astandard uncertainty multiplied by a coverage factor of $\mathbf{k=2}$, providing a level of confidence of approximately $\mathbf{95}\%$ \circ

A. Radiated Measurement:

Test Site	Method	Measurement Frequency Range		U,(dB)
DG-CB03 (3m)		9KHz ~ 30MHz	V	3.79
	CISPR	9KHz ~ 30MHz	Н	3.57
		30MHz ~ 200MHz	V	3.82
		30MHz ~ 200MHz	Η	3.78
		200MHz ~ 1,000MHz	V	4.10
		200MHz ~ 1,000MHz	Н	4.06

Test Site	Method	Measurement Frequency Range	Ant. H / V	U,(dB)
DG-CB03 (3m)		1GHz ~ 18GHz	٧	3.12
	CISPR	1GHz ~ 18GHz	Ι	3.68
	CIOPK	18GHz ~ 40GHz	V	4.15
		18GHz ~ 40GHz	Н	4.14

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

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3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	3G/4G TRINITY PORTABLE SIM-BASED WI-FI HOTSPOT				
Brand Name	NEXXT				
Model Name	ARNPR3G5U1				
Model Difference	NA				
Modulation Type	WCDMA	BPSK			
Operation Frequency	WCDMA 826.4 ~ 846.6 MHz				
Max. EIRP Power	WCDMA	21.52dBm			
Antenna Type	Fixed Internal Antenna				
Antenna Gain	-1.66dBi				
Power Source	#1 Supplied from PC USB port. #2 Supplied from LI-ion Battery.				
Power Rating	#1 DC 5V #2 2000mAh/3.7V/7.4Wh				

Note:

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

2. The EUT contains following accessory devices.

Product	Brand	Model	Description
Battery	N/A	BM301	3.7Vdc, 2000mAh
USB Cable	N/A	N/A	0.8m shielded cable without core

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3.2 DESCRIPTION OF TEST MODES AND TEST CONDITION

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports

The worst case was found when positioned on Z-plane for ERP and Z-axis for radiated emission. Following channel(s) was (were) selected for the final test as listed below:

WCDMA MODE						
Test Item	Available Channel	Tested Channel	Mode			
ERP	4132 to 4233	4132, 4182, 4233	WCDMA			
Condcudeted Emission	4132 to 4233	4182	WCDMA			
Radiated Emission	4132 to 4233	4132	WCDMA			
Band Edge	4132 to 4233	4132, 4233	WCDMA			
Frequency Stability	4132 to 4233	4182	WCDMA			

EUT TEST CONDITIONS:

Test Item	Environmental Conditions	Input Power	Tested By
ERP	25°C, 65%RH	DC 3.7V	Kai Xu
Occupied Bandwidth	25°C, 65%RH	DC 3.7V	Kai Xu
Conducted Emission	25°C, 65%RH	DC 3.7V	Kai Xu
Radiated Emission	25°C, 65%RH	DC 3.7V	Kai Xu
Band Edge	25°C, 65%RH	DC 3.7V	Kai Xu
Frequency Stability	25°C, 65%RH	DC 3.7V	Kai Xu

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3.3 BLOCKDIGRAMSHOWINGTHECONFIGURATIONOFSYSTEMTESTED							
E.R.P:							
				EUT			
						F	Remote system Ground Plane
3.4 DE	SCRIPTION	OF SUPPOR	T UNITS				
suppoi		following supp					essary accessories or a representative test
Itoro	Equipment	Mfr/Brand	Model/Type No.	FCC	ID	Series No.	Note
Item				-			
-	-	-	-	-		-	_
-	- Chielded Tu	- Forrito Co	- Longth	-		- NI	- oto
- Item	Shielded Ty	pe Ferrite Co	re Length	-		- Ne	ote -

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4. TEST RESULT

4.1 OUTPUT POWER MEASUREMENT

4.1.1 LIMIT

Mobile / Portable station are limited to 7 watts e.r.p.

4.1.2 TEST PROCEDURE

EIRP/ERP:

- All measurements were done at low, middle and high operational frequency range. RBW and VBW is 1MHz for GSM, GPRS & EDGE, 5MHz for WCDMA & CDMA, and 10MHz for LTE mode.
- 2. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- 3. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a tx cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step b. Record the power level of S.G
- 5. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of Integral, E.R.P power=E.I.P.R power-2.15dBi.

Conducted Power:

The EUT was set up for the maximum power with GSM, GPRS, EDGE, WCDMA, CDMA, and LTE link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

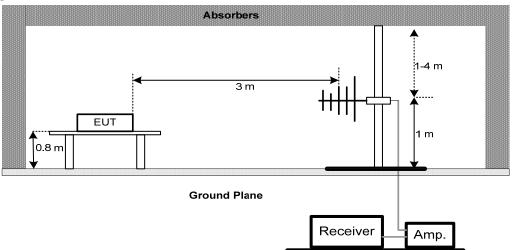
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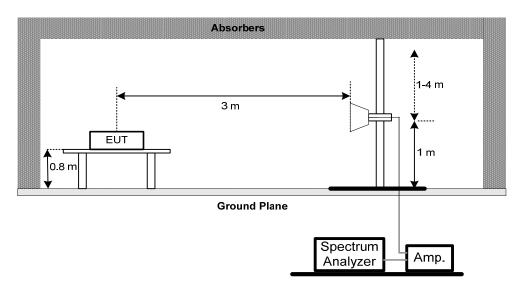
4.1.3 TESTSETUP LAYOUT

ERP Power Measurement

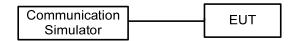
Below 1G



Above 1G



Conducted Power Measurement



4.1.4 TEST DEVIATION

No deviation

4.1.5 TEST RESULTS

Please refer to the Attachment A.

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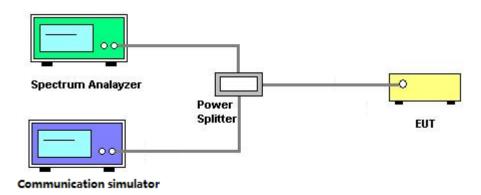


4.2 OCCUPIED BANDWIDTH MEASUREMENT

4.2.1 TEST PROCEDURE

The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

4.2.2 TEST SETUP LAYOUT



4.2.3 TEST DEVIATION

No deviation

4.2.4 TEST RESULTS

Please refer to the Attachment B.

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4.3 CONDUCTED EMISSIONS MEASUREMENT

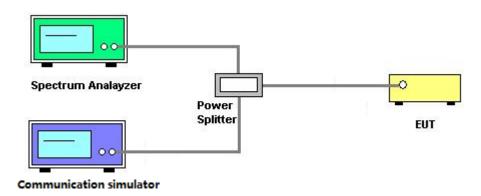
4.3.1 LIMIT

The power of any emission outside of the authorized 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.

4.3.2 TEST PROCEDURES

- 1. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- 2. Measuring frequency range is from 9 kHz to 9GHz. 20dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

4.3.3 TESTSETUP LAYOUT



4.3.4 TESTDEVIATION

No deviation

4.3.5 TEST RESULTS

Please refer to the Attachment C.

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4.4 RADIATED EMISSIONS MEASUREMENT

4.4.1 LIMIT

The power of any emission outside of the authorized 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.

4.4.2 TEST PROCEDURES

- 1. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- 2. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step a. Record the power level of S.G
- 3. EIRP = Output power level of S.G TX cable loss + Antenna gain of substitution horn.
- 4. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.P.R power 2.15dBi.
- 5. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

4.4.3 TESTSETUP LAYOUT

This test setup layout is the same as that shown in **section 4.1.3.**

4.4.4 TESTDEVIATION

No deviation

4.4.5 TEST RESULTS

Please refer to the Attachment D.

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4.5 BAND EDGE MEASUREMENT

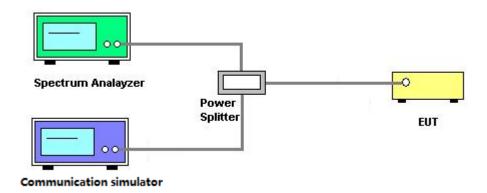
4.5.1 LIMIT

A Power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

4.5.2 TEST PROCEDURES

- 1. All measurements were done at low and high operational frequency range.
- 2. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 3kHz and VB of the spectrum is 10kHz (GSM/GPRS/EDGE).
- 3. The center frequency of spectrum is the band edge frequency and span is 5MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (WCDMA).
- 4. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 13kHz and VB of the spectrum is 51kHz (LTE Bandwidth 1.4MHz).
- 5. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 30kHz and VB of the spectrum is 100kHz (LTE Bandwidth 3MHz).
- 6. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (LTE Bandwidth 5MHz/10MHz).
- 7. Record the max trace plot into the test report.

4.5.3 TESTSETUP LAYOUT



4.5.4 TESTDEVIATION

No deviation

4.5.5 TEST RESULTS

Please refer to the Attachment E.

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4.6 FREQUENCY STABILITY MEASUREMENT

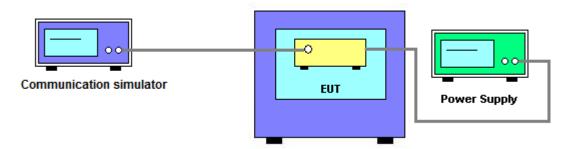
4.6.1 LIMIT

1.5 ppm is for base and fixed station. 2.5 ppm is for mobile station.

4.6.2 TEST PROCEDURES

- 1. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- 2. EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
- 3. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the ±0.5°C during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.
- 4. The frequency error was recorded frequency error from the communication simulator.

4.6.3 TESTSETUP LAYOUT



4.6.4 TESTDEVIATION

No deviation

4.6.5 TEST RESULTS

Please refer to the Attachment F.

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5. LIST OF MEASUREMENT EQUIPMENTS

	Radiated Emission & ERP or EIRP Measurement							
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until			
1	Antenna	Schwarbeck	VULB9160	9160-3232	Mar. 28, 2016			
2	Amplifier	HP	8447D	2944A09673	Nov. 17, 2015			
3	Receiver	AGILENT	N9038A	MY52130039	Oct. 11, 2016			
4	Test Cable	emci	LMR-400(30MH z-1GHz)	C-01	Jun. 28, 2016			
5	Controller	CT	SC100	N/A	N/A			
6	Antenna	ETS	3115	75789	Mar. 28, 2016			
7	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Mar. 28, 2016			
8	Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC2654045	980039 & HA01	Mar. 28, 2016			
9	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A			
10	Wireless Communication Test Set	(8960 Series) Agilent	E5515C	MY48364183	Mar. 28, 2016			
11	Band Reject Filter	Wairrwright Instruments Gmbh	WRCG 824/849-810/86 3-60/9SS	7	Mar. 04, 2016			

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	Conducted Emission & Band Edge & Occupied Bandwidth Measurement									
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until					
1	EXA SpectrumAnalyzer	Agilent	N9010A	MY50520044	Mar. 28, 2016					
2	Wireless Communication Test Set	(8960 Series)Agilent	E5515C	MY48364183	Mar. 28, 2016					
3	wideband radio communication tester	R&S	CMW500	152372	Jan.30, 2016					
4	POWER SPLITTER	Mini-Circuits	ZFRSC-123- S+	331000910-1	Mar. 17, 2016					
5	Test Cable	N/A	RG316	Cable4-001	Jul. 15, 2016					
6	Test Cable	N/A	RG316	Cable4-002	Jul. 15, 2016					

	Frequency Stability Measurement									
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until					
1	Wireless Communication Test Set wideband radio communication tester Wireless (8960 Series)Agilent R85		E5515C	MY48364183	Mar. 28, 2016					
2			CMW500	152372	Jan.30, 2016					
3	POWER SPLITTER	Mini-Circuits	ZFRSC-123- S+	331000910-1	Mar. 17, 2016					
4	Test Cable N/A		RG316	Cable4-001	Jul. 15, 2016					
5	Const Temp. & Hu midity Chamber GIANT FORCE		ITH-225-20- S	IAB0309-001	Dec.05, 2015					
6			GPC-30300N	EK880675	Oct. 13, 2016					

Remark: "N/A" denotes no model name, serial no. or calibration specified.

All calibration period of equipment list is one year.

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6. EUT TEST PHOTO

Radiated Measurement Photos

30MHz to 1000MHz





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Radiated Measurement Photos

Above 1000MHz





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ATTACHMENT A - OUTPUT POWER

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ERP Power

	WCDMA Band V								
Plane	Channel	Frequency (MHz)	ERP(dBm)	Max. Limit (dBm)	Polarization (H/V)				
	4132	826.4	20.81	33.00	Н				
	4182	836.4	21.52	33.00	Н				
Z	4233	846.6	21.26	33.00	Н				
	4132	826.4	10.87	33.00	V				
	4182	836.4	10.36	33.00	V				
	4233	846.6	10.73	33.00	V				

Conducted Power:

Band	WCDMA Band V			
TX Channel		4132	4182	4233
RX Channel	Max. Tune-up Power	4357	4407	4458
Frequency	1 OWC	826.4	836.4	846.6
RMC 12.2K	23.00	22.95	22.61	22.71
RMC 64K	23.00	22.92	22.59	22.69
RMC 144K	23.00	22.93	22.60	22.70
RMC 384K	23.00	22.91	22.58	22.70
HSDPA Subtest-1	22.00	21.97	21.76	21.87
HSDPA Subtest-2	22.00	21.89	21.73	21.85
HSDPA Subtest-3	22.00	21.54	21.25	21.40
HSDPA Subtest-4	22.00	21.53	21.24	21.37
HSUPA Subtest-1	20.50	19.95	19.96	19.80
HSUPA Subtest-2	20.50	19.45	19.20	19.30
HSUPA Subtest-3	20.50	20.49	20.20	19.28
HSUPA Subtest-4	20.50	18.93	19.72	18.78
HSUPA Subtest-5	20.50	19.99	19.67	19.84
HSPA+ Subtest-1	22.00	21.97	21.68	21.78
HSPA+ Subtest-2	22.00	21.89	21.69	21.78
HSPA+ Subtest-3	22.00	21.96	21.68	21.77
HSPA+ Subtest-4	22.00	21.94	21.69	21.78
HSPA+ Subtest-1 (UL 16 QAM)	20.50	20.48	20.22	20.40

REMARKS:

- 1. Radiated Output Power(dBm)=Raw Value(dBm) + Correction Factor(dB) +Ant Gain(dBi)
- 2. Correction Factor(dB) = Power SplitterLoss(dB) + Cable Loss(dB)
- 3. The antenna gain is -1.66dBi
- 4. Tests have been conducted for both vertical and horizontal plane and the worst case was found in horizontal plane and the results were selected and recorded in the report

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ATTACHMENT B - OCCUPIED BANDWIDTH

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Test Mode : TX Mode Configuration WCDMA								
Channel	Frequency	99% OBW (MHz)	-26dBc Bandwidth (MHz)	Result				
4132	826.4MHz	4.16	4.69	Complies				
4182	836.4MHz	4.19	4.71	Complies				
4233	846.6MHz	4.16	4.69	Complies				

99% Occupied Bandwidth channel 4132



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99% Occupied Bandwidth channel 4182



99% Occupied Bandwidth channel 4233



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ATTACHMENT C – CONDUCTED EMISSIONS

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Conducted Spurious of Configuration WCDMAchannel 4182



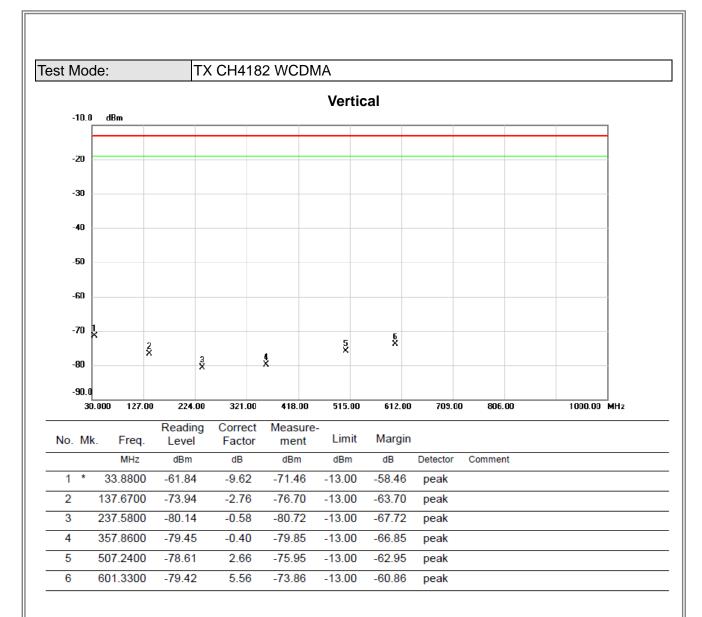
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ATTACHMENT D - RADIATED EMISSION	

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Test Mode: TX CH4182 WCDMA

-90.0 30.000

127.00

224.00

321.00

418.00

No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	33.8800	-67.45	0.91	-66.54	-13.00	-53.54	peak	
2		159.9800	-78.69	-4.21	-82.90	-13.00	-69.90	peak	
3		375.3200	-80.62	-0.59	-81.21	-13.00	-68.21	peak	
4		502.3900	-79.67	0.92	-78.75	-13.00	-65.75	peak	
5		583.8700	-79.22	1.78	-77.44	-13.00	-64.44	peak	
6		750.7100	-79.22	4.42	-74.80	-13.00	-61.80	peak	

515.00

612.00

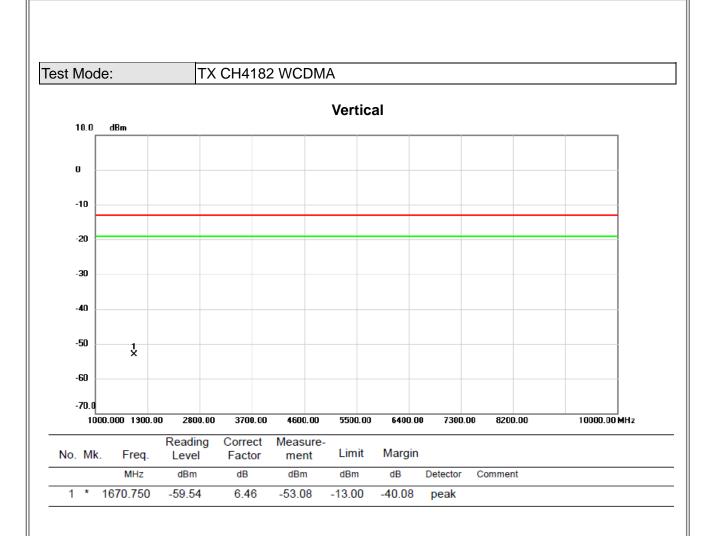
709.00

806.00

1000.00 MHz

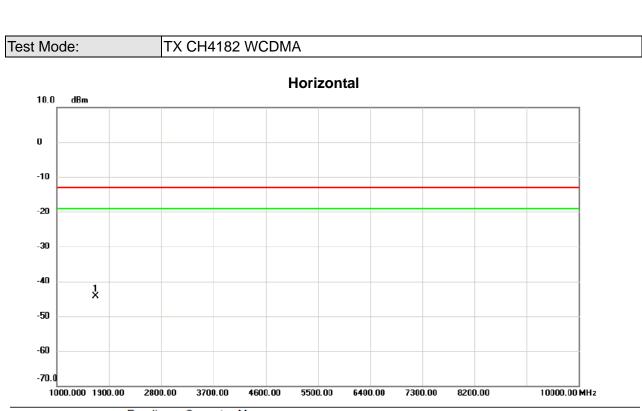
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_	No.	М	c. Freq.	_		Measure- ment		Margin		
_			MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
	1	*	1670.480	-52.51	8.16	-44.35	-13.00	-31.35	peak	

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ATTACHMENT E - BAND EDGE	

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Band Edge on Configuration WCDMA/ Channel 4132-CONDUCTED MODE



Band Edge on Configuration WCDMA / Channel 4233-CONDUCTED MODE



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ATTACHMENT F - FREQUENCY STABILITY				

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Temperature vs. Frequency Stabiility

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	5.69	0.006802965	2.5
10	3.24	0.003873745	2.5
20	5.89	0.007042085	2.5
30	1.12	0.001339072	2.5
40	7.52	0.008990913	2.5
45	4.42	0.005284553	2.5
Max. Deviation (ppm)	7.52	0.008990913	2.5

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
3.7	2.64	0.003156385	2.5
3.5	3.14	0.003754185	2.5
4.35	5.68	0.006791009	2.5
Max. Deviation (ppm)	5.68	0.006791009	2.5

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