FCC Radio Test Report

FCC ID: M82-DLTV6210LTE

Report No.	:	BTL-FCCP-3-1608T164C
Equipment	:	Computer
Model Name	:	DLT-V6210LTE, DLTV6210XXXXXXXXXXXXX (where X may be any alphanumeric character, blank or "-".)
Brand Name	:	ADVANTECH
Applicant	:	Advantech Co., Ltd.
Address	:	No.1, Alley 20, Lane 26, Rueiguang Road, Neihu District, Taipei 11491, Taiwan, R.O.C.
Manufacturer	:	Advantech Co., Ltd.
Address	:	No.1, Alley 20, Lane 26, Rueiguang Road, Neihu District, Taipei 11491, Taiwan, R.O.C.
Radio Function	:	WCDMA Band V
FCC Rule Part(s)	:	47 CRF FCC Part 22, Subpart H
Measurement Procedure(s)	:	ANSI/TIA/EIA-603-E-2016 KDB 971168 D01 Power Meas License Digital Systems v03r01
Date of Receipt	:	2019/10/18
Date of Test	:	2019/10/18 ~ 2020/8/26
Issued Date	:	2020/9/4

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

Prepared by

Peter Chen, Engineer

Approved by :

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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 NIST, A2LA, 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** 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.

CONTENTS

REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Original Issue.	2020/2/27
R01	Revised report to address TCB's comments.	2020/7/9
R02	Revised Typo.	2020/7/15
R03	Revised report to address TCB's comments.	2020/8/4
R04	Revised report to address TCB's comments.	2020/8/28
R05	Revised report to address TCB's comments.	2020/9/4

1 SUMMARY OF TEST RESULTS

Test procedures according to the technical standards.

Standard(s) Section	Description	Test Result	Judgement	Remark
15.207	AC Power Line Conducted Emissions	N/A	N/A	NOTE (3)
2.1046 24.232(c)	RF Power Output	APPENDIX A	Pass	------
2.1049	Occupied Bandwidth	APPENDIX B	Pass	------
2.1051 22.917(a)	Conducted Spurious Emissions	APPENDIX C	Pass	------
2.1053 22.917(a)	Radiated Spurious Emissions	APPENDIX D	Pass	------
22.917(a)	Band Edge Measurements	APPENDIX E	Pass	------
-	Peak To Average Ratio	APPENDIX F	Pass	Record Only
2.1055 22.355	Frequency Stability	APPENDIX G	Pass	------

NOTE:
(1) ”N/A” denotes test is not applicable in this Test Report.
(2) The report format version is TP.1.1.1.
(3) This is a DC input device.

1.1 TEST FACILITY

The test facilities used to collect the test data in this report:

No. 68-1, Ln. 169, Sec. 2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan
The test sites and facilities are covered under FCC RN: 674415 and DN: TW0659.

☐ C05 ☐ CB08 ☐ CB11 ☒ CB15 ☐ CB16
☒ SR06

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y** ± **U**, where expanded uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k = 2**, providing a level of confidence of approximately **95 %**. The measurement instrumentation uncertainty considerations contained in CISPR 16-4-2. The BTL measurement uncertainty is less than the CISPR 16-4-2 U_{cispr} requirement.

A. Radiated Spurious Emissions test :

Test Site	Measurement Frequency Range	U,(dB)
CB15	0.03 GHz ~ 0.2 GHz	4.17
	0.2 GHz ~ 1 GHz	4.72
	1 GHz ~ 6 GHz	5.21
	6 GHz ~ 18 GHz	5.51
	18 GHz ~ 26 GHz	3.69
	26 GHz ~ 40 GHz	4.23

B. Conducted test:

Test Item	U,(dB)
Output power	1.06

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

1.3 TEST ENVIRONMENT CONDITIONS

Test Item	Environment Condition	Test Voltage	Tested by
RF Power Output	24.1 °C, 46 %	DC 60V	Jay Kao
Occupied Bandwidth	24.8 °C, 46 %	DC 60V	Jay Kao
Conducted Spurious Emissions	24.8 °C, 46 %	DC 60V	Jay Kao
Radiated Spurious Emissions	22 °C, 67 %	Refer to data	Hunter Chiang
Band Edge	24.8 °C, 46 %	DC 60V	Jay Kao
Peak to Average Ratio	24.8 °C, 46 %	DC 60V	Jay Kao
Frequency Stability	Normal and Extreme		Jay Kao

2 GENERAL INFORMATION

2.1 DESCRIPTION OF EUT

Equipment	Computer		
Model Name	DLT-V6210LTE, DLTV6210XXXXXXXXXXXXX (where X may be any alphanumeric character, blank or "-".)		
Brand Name	ADVANTECH		
Model Difference	Different model distribute to different area.		
Power Source	Supplied from DC power.		
Power Rating	9-60V⎓3.6A		
Products Covered	1 * WWAN Card: Quectel / EC25-A		
Test Model	DLT-V6210LTE		
Sample Status	Engineering Sample		
Operation Frequency	Band	UL Frequency (MHz)	DL Frequency (MHz)
	V	826.4 ~ 846.6	871.4 ~ 891.6
EUT Modification(s)	N/A		

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 V				
Test Frequency ID	UARFCN	Frequency of Uplink (MHz)	UARFCN	Frequency of Downlink (MHz)
Low Range	4132	826.4	4357	871.4
Mid Range	4183	836.6	4408	881.5
High Range	4233	846.6	4458	891.6

(3) Table for Filed Antenna:

Group 1(External**):**

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	taoglas	TLS.01.305111	Dipole	SMA(M)	2.42	WCDMA Band V
2	taoglas	TLS.01.305111	Dipole	SMA(M)	2.42	WCDMA Band V

Group 2(Integrated**):**

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	taoglas	MA540.A.ABICG.001	Dipole	IPEX MHF	-2.1	WCDMA Band V
2	taoglas	MA540.A.ABICG.001	Dipole	IPEX MHF	-0.6	WCDMA Band V

Note: Group 1 is found to be the worst case and used for final test.

2.2 TEST MODES

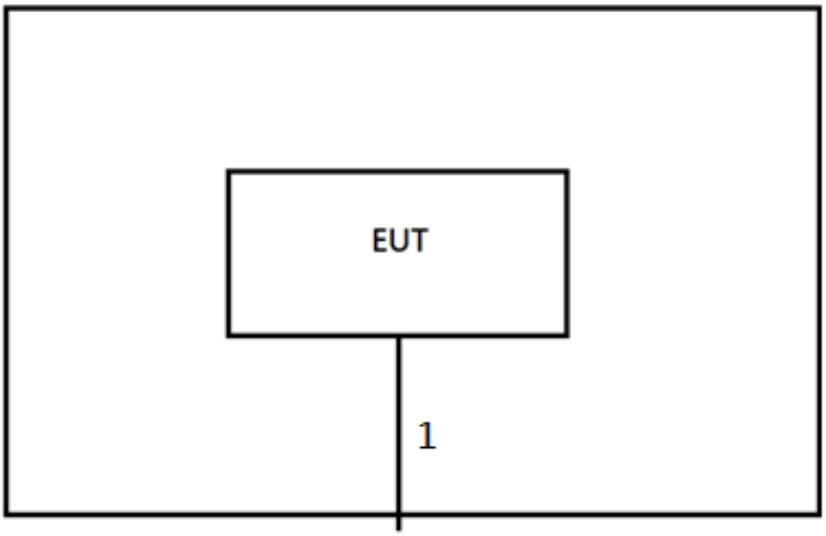
WCDMA BAND V MODE			
Test Item	Available Channel	Tested Channel	Mode
Output Power	4132 to 4233	4132, 4183, 4233	WCDMA, HSDPA, HSUPA
ERP	4132 to 4233	4132, 4183, 4233	WCDMA
Occupied Bandwidth	4132 to 4233	4132, 4183, 4233	WCDMA
Conducted Spurious Emissions	4132 to 4233	4183	WCDMA
Radiated Spurious Emissions	4132 to 4233	4183	WCDMA
Band Edge	4132 to 4233	4132, 4233	WCDMA
Peak to Average Ratio	4132 to 4233	4132, 4183, 4233	WCDMA
Frequency Stability	4132 to 4233	4183	WCDMA

NOTE:
(1) The Radiated emissions test was verified based on the worst conducted power and Bandwidth test results reported in the original report.
(2) All X, Y and Z axes are evaluated, but only the worst case (Y axis) is recorded.

LTE BAND 5 MODE					
Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
Output Power	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK, 16QAM	1RB/3RB/6RB
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK, 16QAM	1RB/8RB/15RB
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK, 16QAM	1RB/12RB/25RB
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK, 16QAM	1RB/25RB/50RB
ERP	20450 to 20600	20450, 20525, 20600	10MHz	QPSK	1RB/25RB/50RB
Occupied Bandwidth	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK, 16QAM	6RB
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK, 16QAM	15RB
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK, 16QAM	25RB
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK, 16QAM	50RB
Conducted Spurious Emissions	20407 to 20643	20525	1.4MHz	QPSK	1RB
	20415 to 20635	20525	3MHz	QPSK	1RB
	20425 to 20625	20525	5MHz	QPSK	1RB
	20450 to 20600	20525	10MHz	QPSK	1RB
Radiated Spurious Emissions	20450 to 20600	20525	10MHz	QPSK	1RB
Band Edge	20407 to 20643	20407, 20643	1.4MHz	QPSK	1RB
					6RB
	20415 to 20635	20415, 20635	3MHz	QPSK	1RB
					15RB
	20425 to 20625	20425, 20625	5MHz	QPSK	1RB
					25RB
	20450 to 20600	20450, 20600	10MHz	QPSK	1RB
					50RB
Peak To Average Ratio	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK, 16QAM	1RB
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK, 16QAM	1RB
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK, 16QAM	1RB
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK, 16QAM	1RB
Frequency Stability	20407 to 20643	20525	1.4MHz	QPSK	1RB
	20415 to 20635	20525	3MHz	QPSK	1RB
	20425 to 20625	20525	5MHz	QPSK	1RB
	20450 to 20600	20525	10MHz	QPSK	1RB

2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Equipment letters and Cable numbers refer to item numbers described in the tables of clause 2.4.



2.4 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.	Remarks
-	-	-	-	-	-

Item	Shielded	Ferrite Core	Length	Cable Type	Remarks
1	NO	NO	3m	DC Cable	-

3 RF POWER OUTPUT TEST

3.1 LIMIT

The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

3.2 TEST PROCEDURE

EIRP / ERP Power Measurement:

EIRP = Conducted Power + Antenna gain.
ERP power = EIPR power - 2.15 dBi.

Conducted Power Measurement:

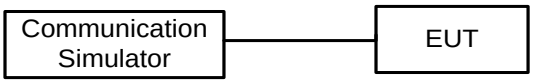
The EUT was set up for the maximum power with WCDMA and LTE link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

3.3 DEVIATION FROM TEST STANDARD

No deviation.

3.4 TEST SETUP

Conducted Power Measurement:



3.5 TEST RESULT

Please refer to the APPENDIX A.

4 OCCUPIED BANDWIDTH MEASUREMENT

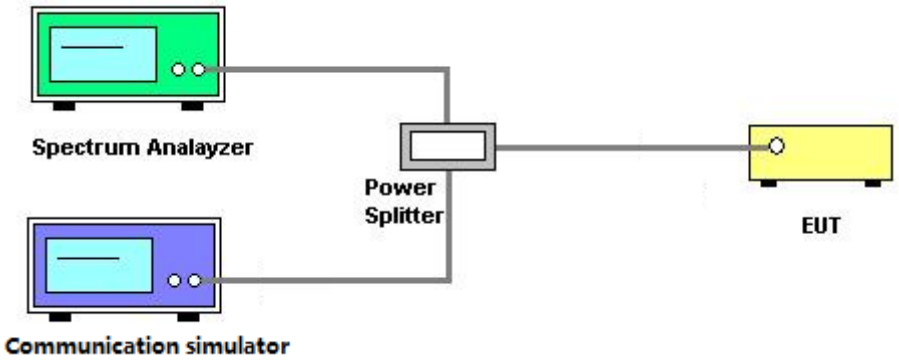
4.1 TEST PROCEDURE

a. 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 and 26dB bandwidth.
b. The EUT was connected to spectrum analyzer and system simulator via a power divider.
c. RBW=(1% ~ 5%)*EBW
VBW≥3* RBW.
d. Set spectrum analyzer with Peak detector.

4.2 DEVIATION FROM TEST STANDARD

No deviation.

4.3 TEST SETUP



4.4 TEST RESULT

Please refer to the APPENDIX B

5 CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

5.1 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.

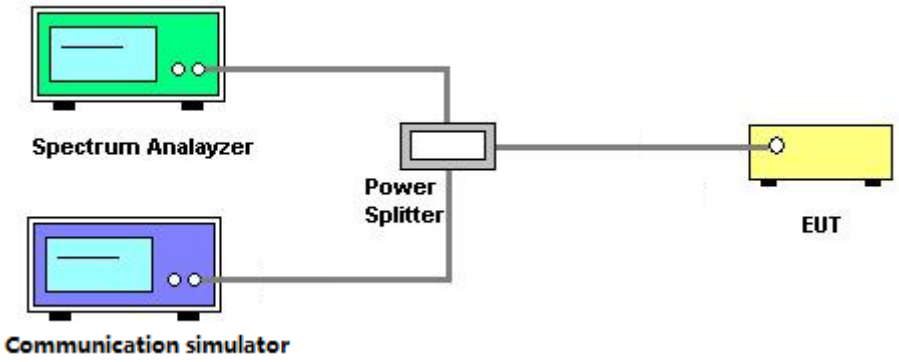
5.2 TEST PROCEDURE

a. The EUT was connected to spectrum analyzer and system simulator via a power divider.
b. The band edges of low and high channels for the highest RF powers were measured. Set RBW>=1% EBW in the 1MHz band immediately outside and adjacent to the band edge.
c. Set spectrum analyzer with Peak detector.
d. ERP power can be calculated form EIRP power by subtracting the gain of dipole,
ERP power = EIRP power - 2.15 dBi.
e. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

5.3 DEVIATION FROM TEST STANDARD

No deviation.

5.4 TEST SETUP



5.5 TEST RESULT

Please refer to the APPENDIX C

6 RADIATED SPURIOUS EMISSIONS TEST

6.1 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.

NOTE:
(1) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use)
Margin Level = Measurement Value - Limit Value
Calculation example:

Reading Level		Correct Factor		Measurement Value
-50.43	+	-2.11	=	-52.54

Measurement Value		Limit Value		Margin Level
-52.54	-	-13	=	-39.54

6.2 TEST PROCEDURE

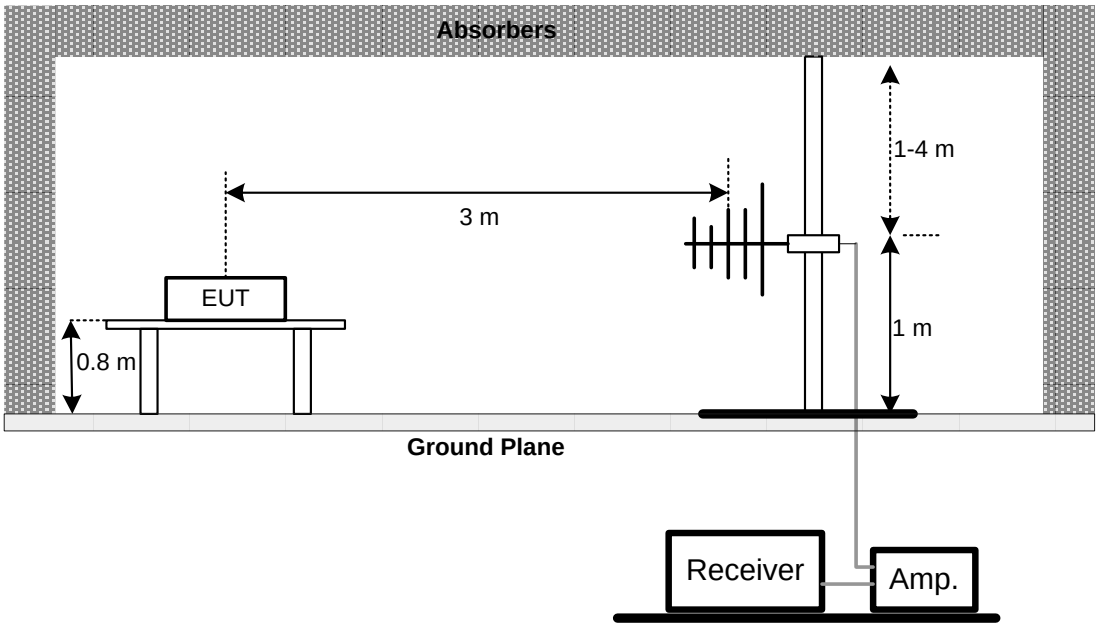
a. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
b. 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
c. EIRP = Output power level of S.G - TX cable loss + Antenna gain of substitution horn.
d. ERP power can be calculated form EIRP power by subtracting the gain of dipole,
ERP power = EIRP power - 2.15 dBi.
e. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is
1 MHz / 3 MHz.

6.3 DEVIATION FROM TEST STANDARD

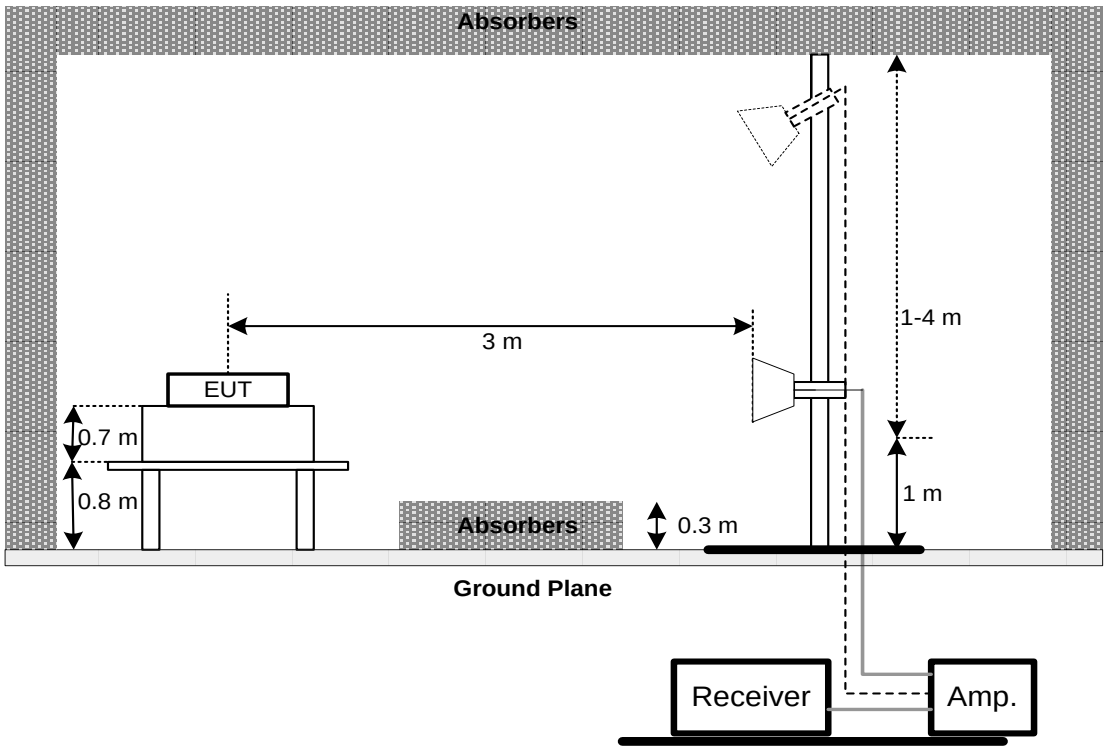
No deviation.

6.4 TEST SETUP

30 MHz to 1 GHz



Above 1 GHz



6.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

6.6 TEST RESULT

Please refer to the APPENDIX D

7 BAND EDGE MEASUREMENT

7.1 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.

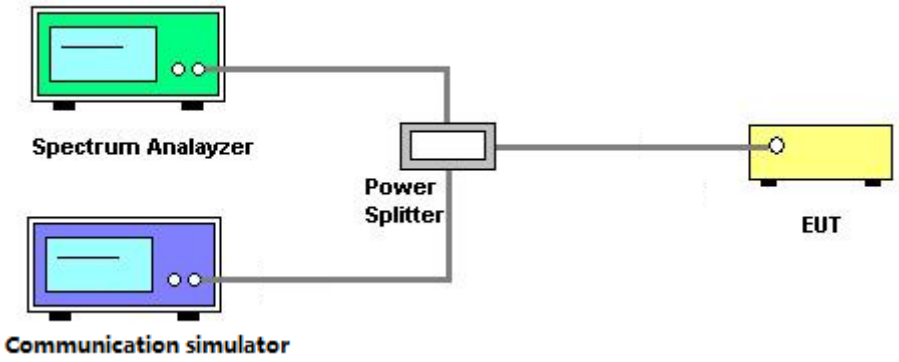
7.2 TEST PROCEDURE

a. All measurements were done at low and high operational frequency range.
b. Record the max trace plot into the test report.

7.3 DEVIATION FROM TEST STANDARD

No deviation.

7.4 TEST SETUP



7.5 TEST RESULT

Please refer to the APPENDIX E

8 PEAK TO AVERAGE RATIO MEASUREMENT

8.1 LIMIT

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

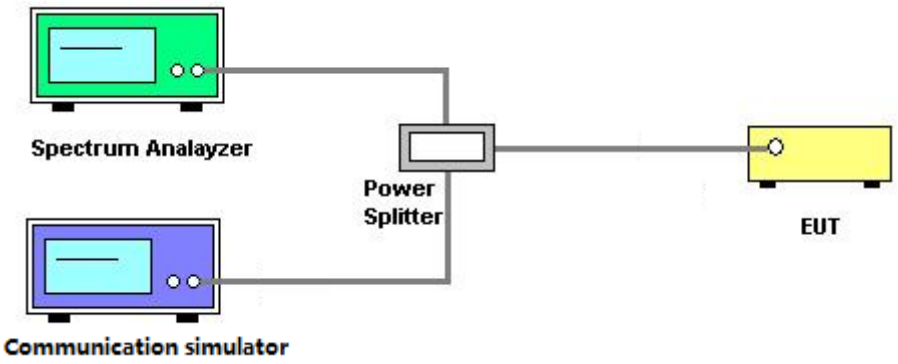
8.2 TEST PROCEDURE

a. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
b. Set the number of counts to a value that stabilizes the measured CCDF curve;
c. Record the maximum PAPR level associated with a probability of 0.1%.

8.3 DEVIATION FROM TEST STANDARD

No deviation.

8.4 TEST SETUP



8.5 TEST RESULT

Please refer to the APPENDIX F

9 FREQUENCY STABILITY MEASUREMENT

9.1 LIMIT

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

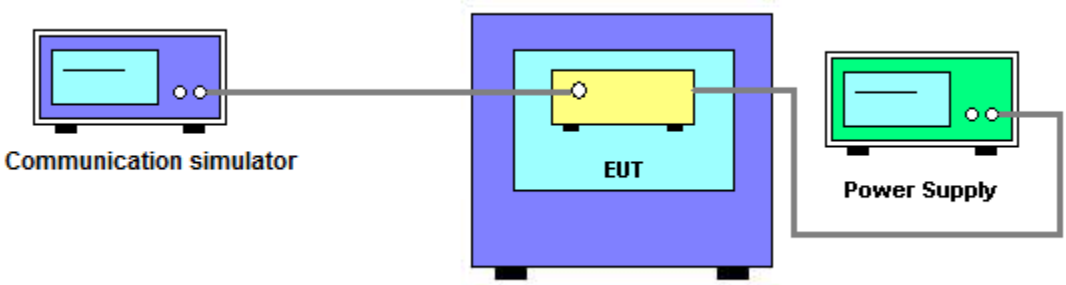
9.2 TEST PROCEDURE

a. 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..
b. 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.
c. 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.
d. The frequency error was recorded frequency error from the communication simulator.

9.3 DEVIATION FROM TEST STANDARD

No deviation.

9.4 TEST SETUP



9.5 TEST RESULT

Please refer to the APPENDIX G

10 LIST OF MEASURING EQUIPMENTS

RF Power Output						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Radio Communication Analyzer	Anritsu	MT8820C	6201525878	2020/6/19	2021/6/18
2	8960 Series 10 Wireless Com Test Set	Agilent	E5515C	GB47390193	2020/6/4	2021/6/3

Radiated Spurious Emissions						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Preamplifier	EMCI	EMC001340	980555	2019/4/12	2020/4/11
2	Preamplifier	EMCI	EMC02325B	980217	2019/4/12	2020/4/11
3	Preamplifier	EMCI	EMC012645B	980267	2019/4/12	2020/4/11
4	Test Cable	EMCI	EMC104-SM-SM-800	150207	2019/4/12	2020/4/11
5	Test Cable	EMCI	EMC104-SM-SM-3000	151205	2019/4/12	2020/4/11
6	Test Cable	EMCI	EMC-SM-SM-7000	180408	2019/4/12	2020/4/11
7	MXE EMI Receiver	Agilent	N9038A	MY55420127	2019/3/26	2020/3/25
8	Signal Analyzer	Agilent	N9010A	MY56480554	2019/6/6	2020/6/5
9	Horm Ant	SCHWARZBECK	BBHA 9120D	9120D-1342	2019/6/10	2020/6/9
10	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	000992	2019/5/29	2020/5/28
11	5dB Attenuator	EMCI	EMCI-N-6-05	AT-N0508	2019/5/29	2020/5/28
12	Preamplifier	EMCI	EMC2654045	980030	2019/2/2	2020/2/2

Frequency Stability Measurement						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Radio Communication Analyzer	Anritsu	MT8820C	6201525878	2020/6/19	2021/6/18
2	8960 Series 10 Wireless Com Test Set	Agilent	E5515C	GB47390193	2020/6/4	2021/6/3
3	Thermal Chamber	HOLINK	H-TH-2SP-B	EK04101902	2020/7/2	2021/7/1

Others Conducted Measurement						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Spectrum Analyzer	Agilent	N9010A	MY54200240	2019/11/19	2020/11/18

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

11 EUT TEST PHOTO

Please refer to document Appendix No.: TP-1608T164C-1 (APPENDIX-TEST PHOTOS).

12 EUT PHOTOS

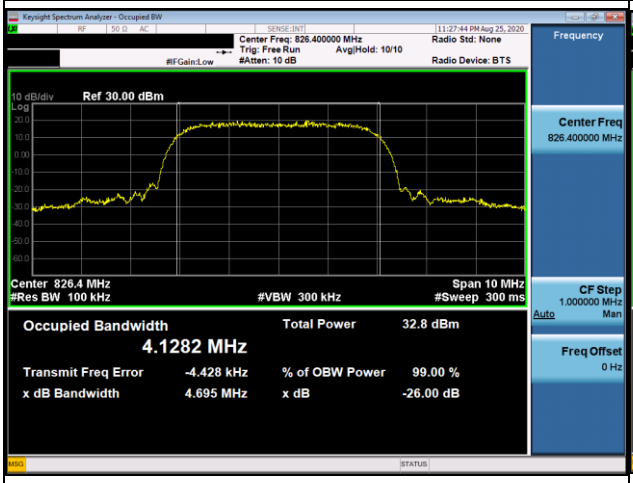
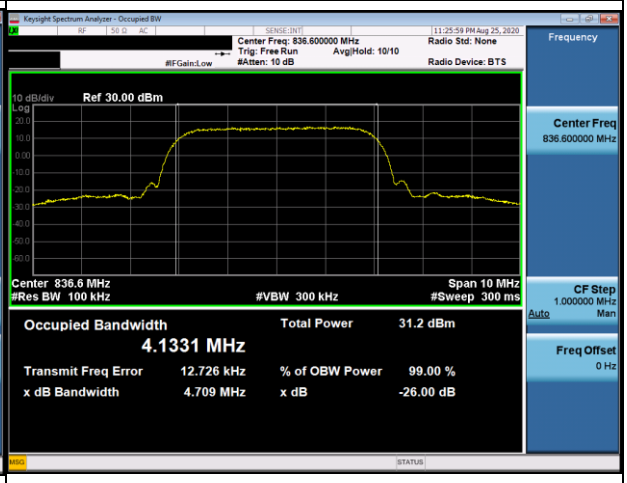
Please refer to document Appendix No.: EP-1608T164C-2 (APPENDIX-EUT PHOTOS).

APPENDIX A RF POWER OUTPUT TEST

Band	WCDMA Band V					
Tx Channel	4132	4183	4233	4132	4183	4233
Rx Channel	4357	4408	4458	4357	4408	4458
Frequency (MHz)	826.4	836.6	846.6	826.4	836.6	846.6
Mode	Conducted Power (dBm)			ERP (dBm)		
RMC 12.2K	22.90	22.70	22.81	23.17	22.97	23.08
HSDPA Subtest-1	**23.12**	23.02	23.08	**23.39**	23.29	23.35
HSDPA Subtest-2	22.93	22.68	22.89	23.20	22.95	23.16
HSDPA Subtest-3	22.89	22.76	22.74	23.16	23.03	23.01
HSDPA Subtest-4	22.73	22.59	22.62	23.00	22.86	22.89
HSUPA Subtest-1	22.98	22.86	22.88	23.25	23.13	23.15
HSUPA Subtest-2	22.79	22.71	22.69	23.06	22.98	22.96
HSUPA Subtest-3	22.81	22.74	22.78	23.08	23.01	23.05
HSUPA Subtest-4	22.77	22.69	22.72	23.04	22.96	22.99
HSUPA Subtest-5	22.86	22.74	22.69	23.13	23.01	22.96
HSPA+	22.86	22.77	22.72	23.13	23.04	22.99
				Antenna Gain	2.42	dBi

APPENDIX B OCCUPIED BANDWIDTH

WCDMA Band V_WCDMA					
QPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
4132	826.4	4.1282	4132	826.4	4.695
4183	836.6	4.1331	4182	836.4	4.709
4233	846.6	4.1355	4233	846.6	4.711

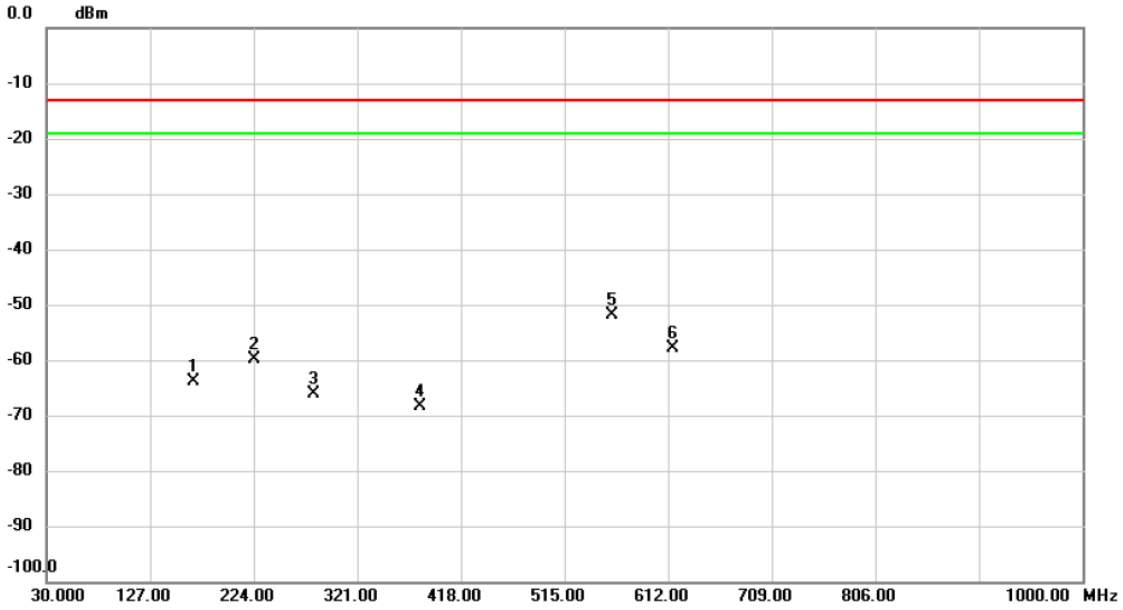
Spectrum Plot	
4132	4183
	
4233	-
	-

APPENDIX C CONDUCTED SPURIOUS EMISSION

WCDMA Band V_WCDMA Spectrum Plot	
Channel	Frequency(MHz)
4183	836.6

APPENDIX D RADIATED SPURIOUS EMISSIONS TEST

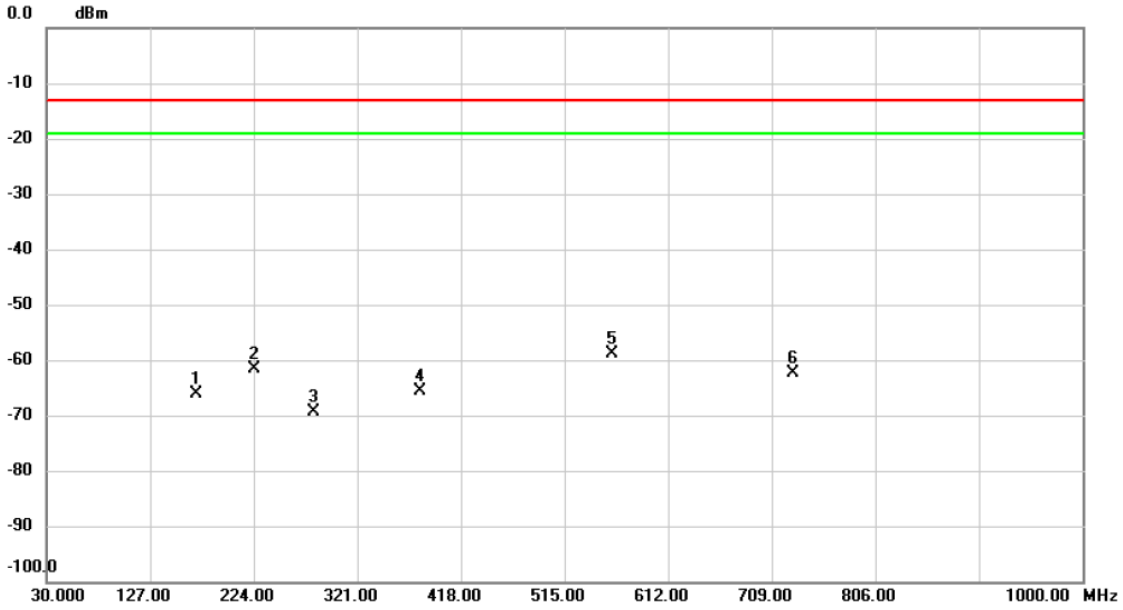
Test Mode	WCDMA Band V_Link CH4408	Tested Date	2019/11/4
Test Voltage	DC 60V	Polarization	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1		167.7400	-68.87	4.93	-63.94	-13.00	-50.94	peak	
2		224.0000	-59.57	-0.34	-59.91	-13.00	-46.91	peak	
3		280.2600	-65.23	-0.98	-66.21	-13.00	-53.21	peak	
4		380.1700	-68.03	-0.38	-68.41	-13.00	-55.41	peak	
5	*	559.6200	-57.21	5.43	-51.78	-13.00	-38.78	peak	
6		615.8800	-63.68	5.76	-57.92	-13.00	-44.92	peak	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

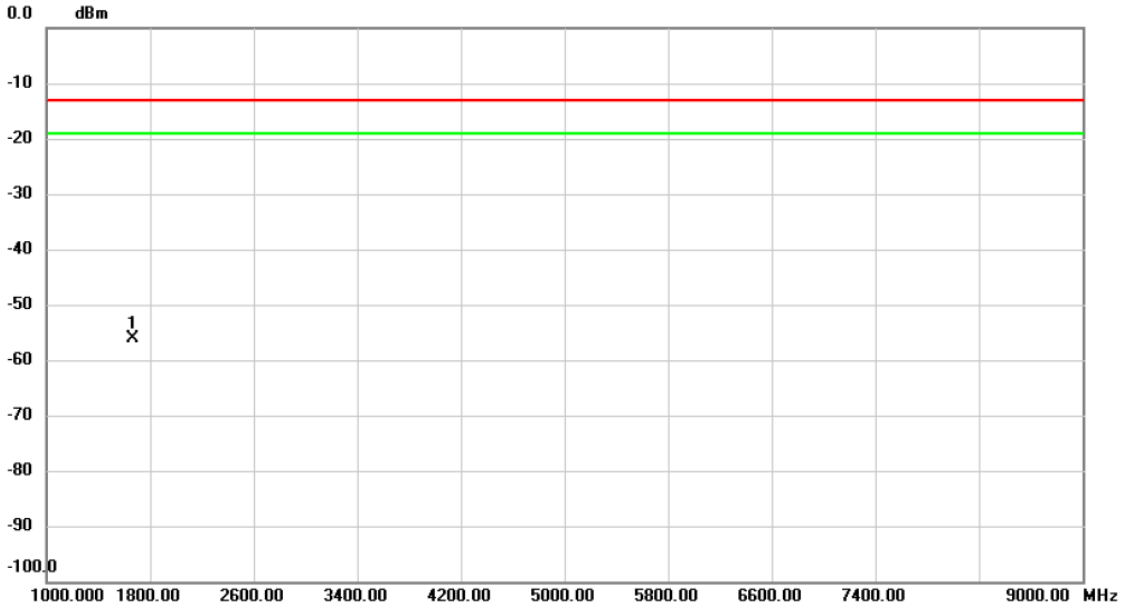
Test Mode	WCDMA Band V_Link CH4408	Tested Date	2019/11/4
Test Voltage	DC 60V	Polarization	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1		169.6800	-66.92	0.71	-66.21	-13.00	-53.21	peak	
2		224.0000	-55.70	-5.90	-61.60	-13.00	-48.60	peak	
3		280.2600	-64.71	-4.74	-69.45	-13.00	-56.45	peak	
4		379.2000	-65.65	0.11	-65.54	-13.00	-52.54	peak	
5	*	559.6200	-60.85	1.92	-58.93	-13.00	-45.93	peak	
6		729.3700	-67.73	5.26	-62.47	-13.00	-49.47	peak	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

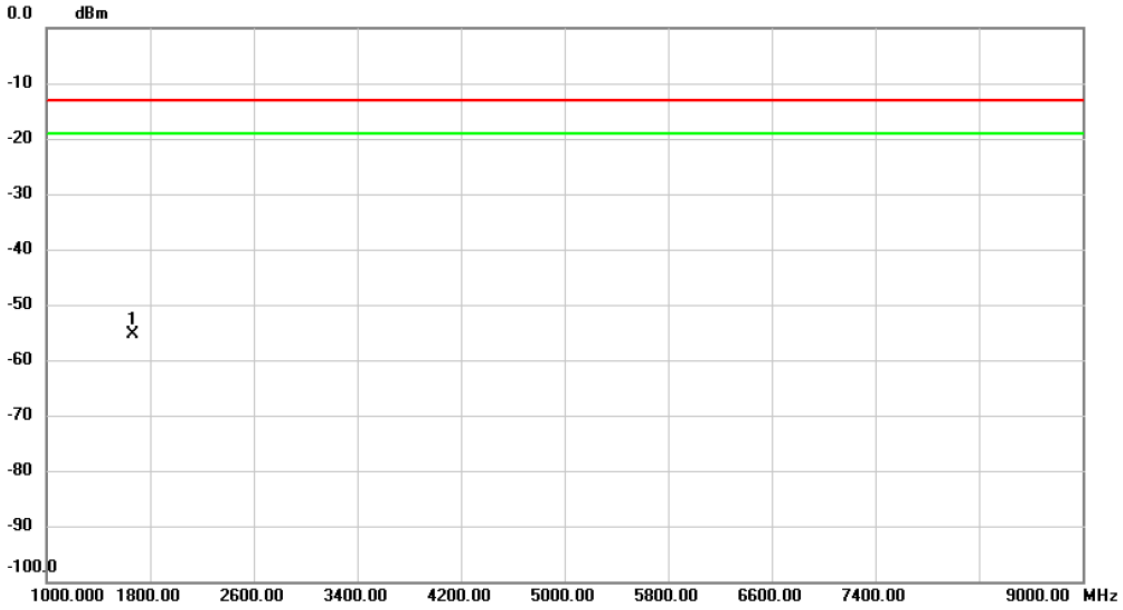
Test Mode	WCDMA Band V_Link CH4408	Tested Date	2019/11/4
Test Voltage	DC 60V	Polarization	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	1670.745	-47.69	-8.53	-56.22	-13.00	-43.22	peak	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

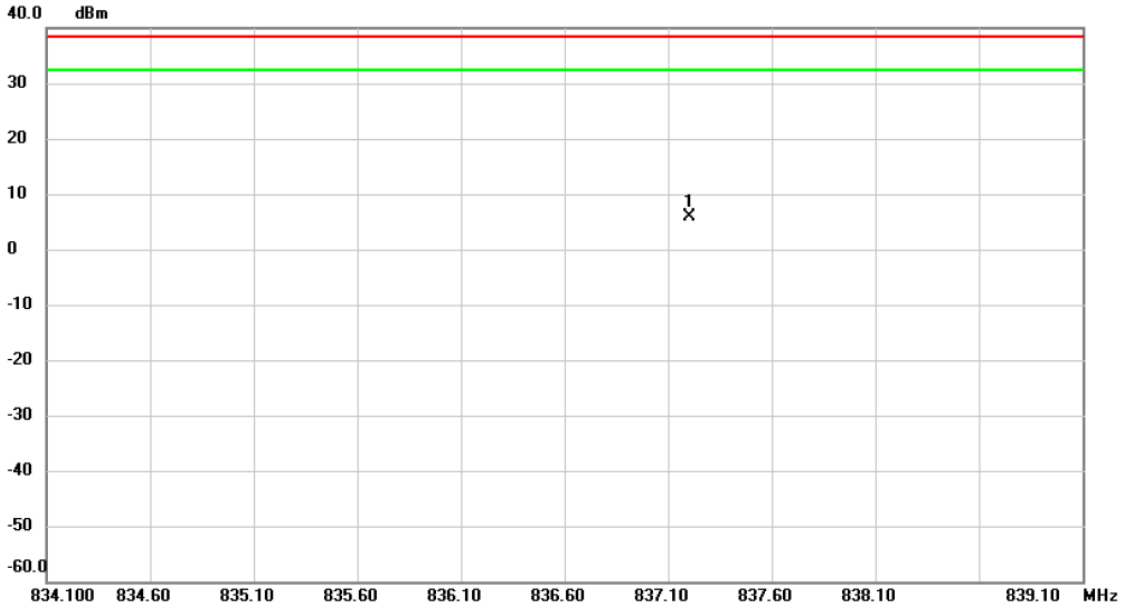
Test Mode	WCDMA Band V_Link CH4408	Tested Date	2019/11/4
Test Voltage	DC 60V	Polarization	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	1670.850	-46.70	-8.78	-55.48	-13.00	-42.48	peak	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

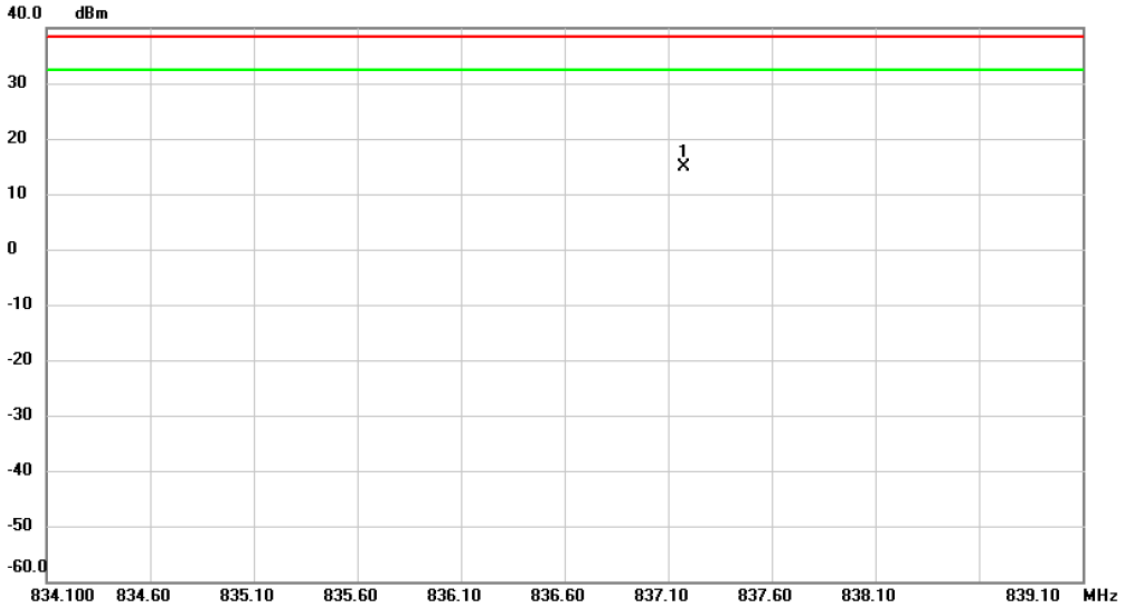
Test Mode	WCDMA Band V_Link CH4408	Tested Date	2019/11/4
Test Voltage	DC 60V	Polarization	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	837.2000	-28.40	34.38	5.98	38.45	-32.47	peak	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

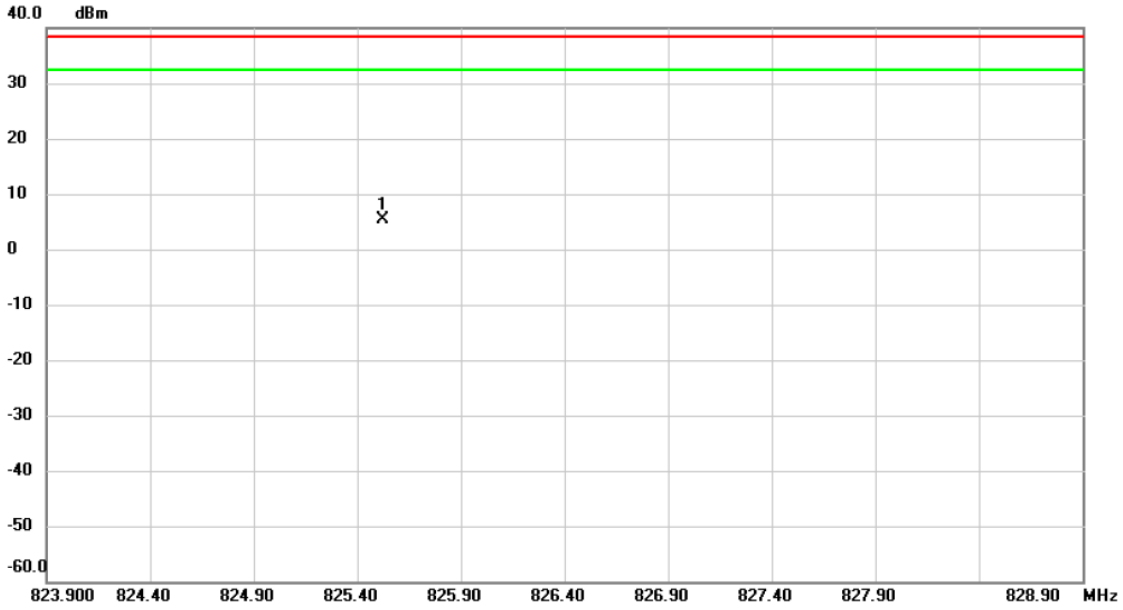
Test Mode	WCDMA Band V_Link CH4408	Tested Date	2019/11/4
Test Voltage	DC 60V	Polarization	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	837.1750	-18.84	33.81	14.97	38.45	-23.48	peak	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

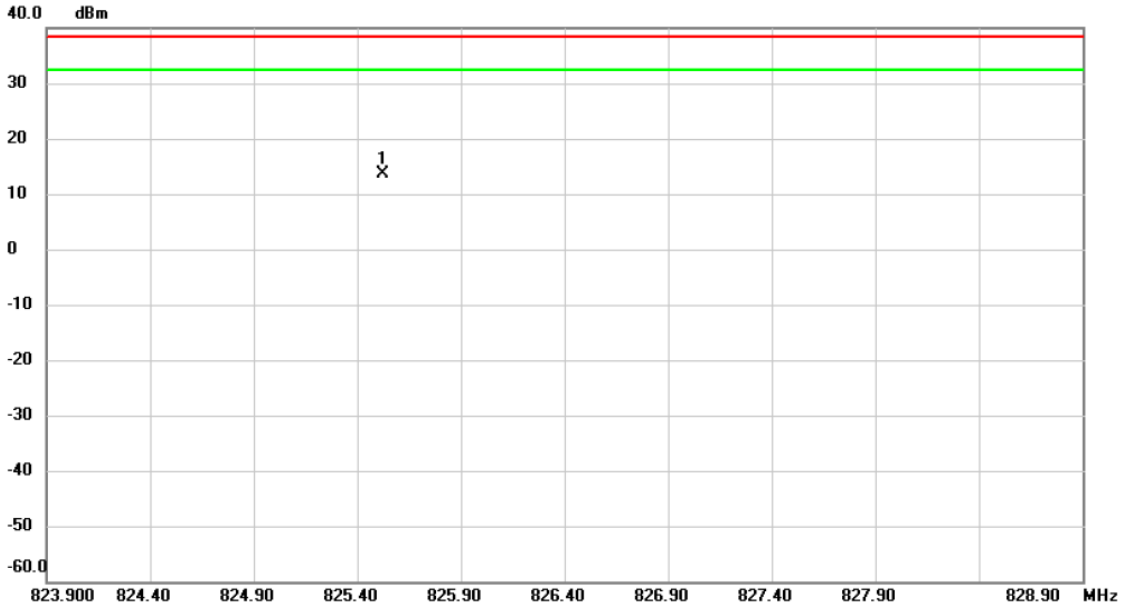
Test Mode	WCDMA Band V_Link CH4357	Tested Date	2019/11/4
Test Voltage	DC 60V	Polarization	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	825.5250	-28.92	34.26	5.34	38.45	-33.11	peak	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

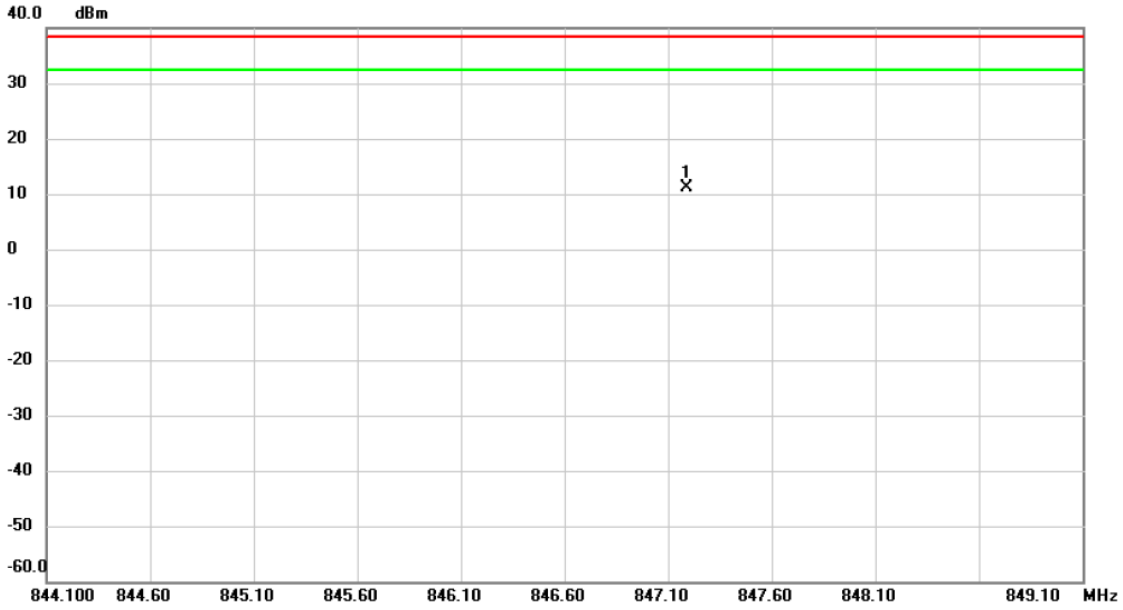
Test Mode	WCDMA Band V_Link CH4357	Tested Date	2019/11/4
Test Voltage	DC 60V	Polarization	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	825.5200	-20.21	33.82	13.61	38.45	-24.84	peak	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

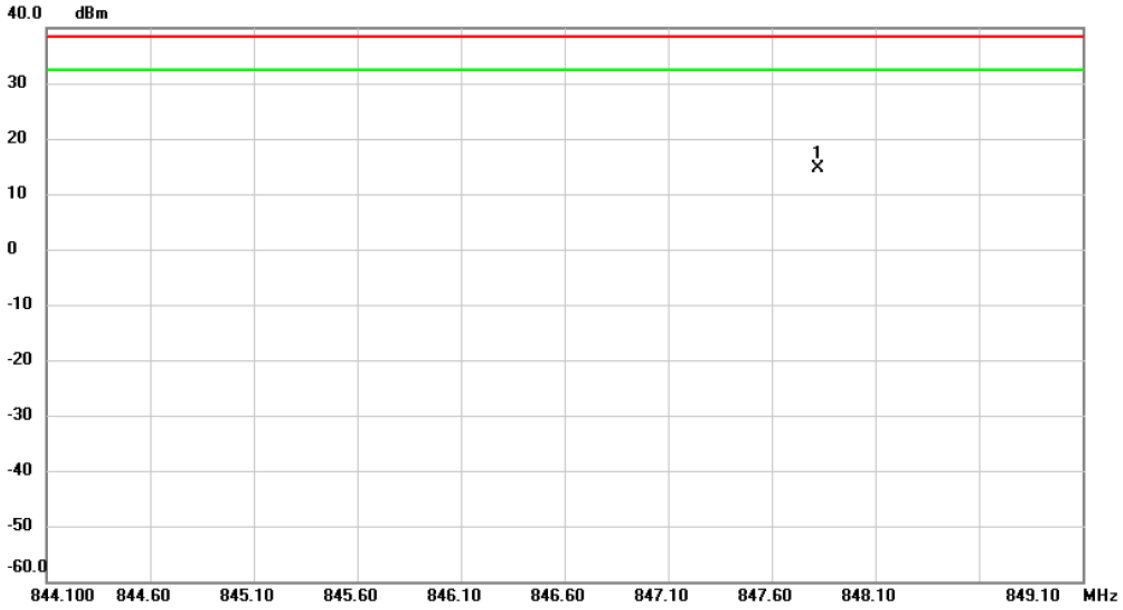
Test Mode	WCDMA Band V_Link CH4458	Tested Date	2019/11/4
Test Voltage	DC 60V	Polarization	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	847.1900	-23.32	34.49	11.17	38.45	-27.28	peak	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

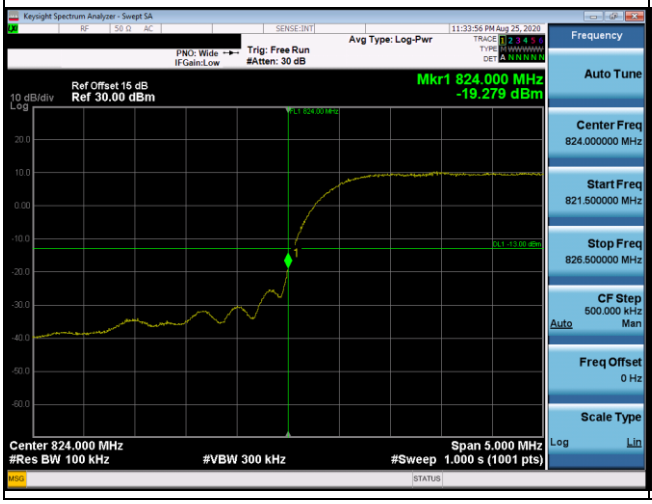
Test Mode	WCDMA Band V_Link CH4458	Tested Date	2019/11/4
Test Voltage	DC 60V	Polarization	Horizontal



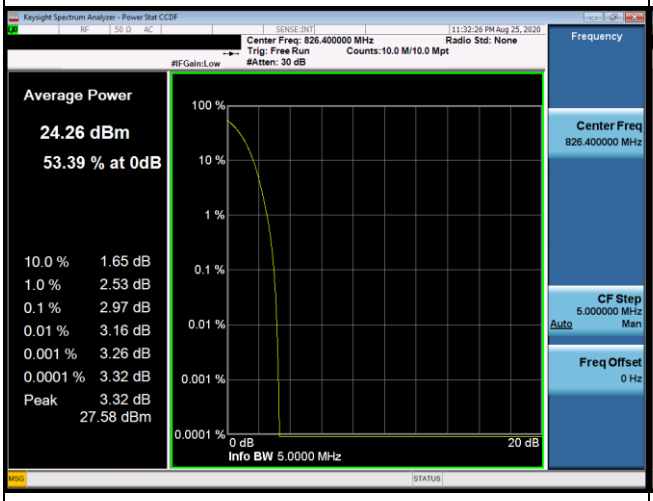
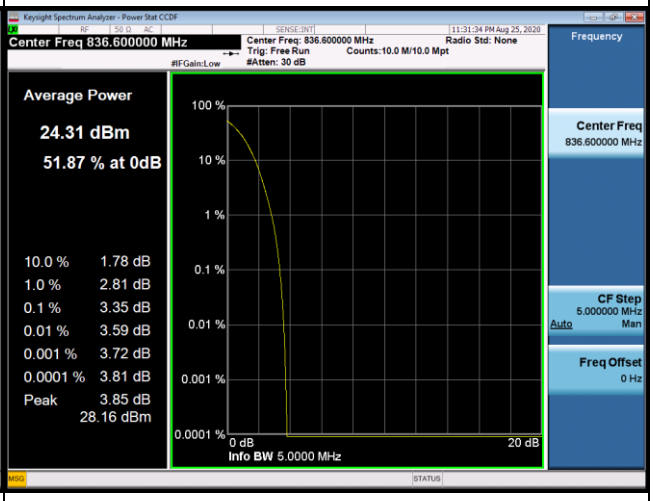
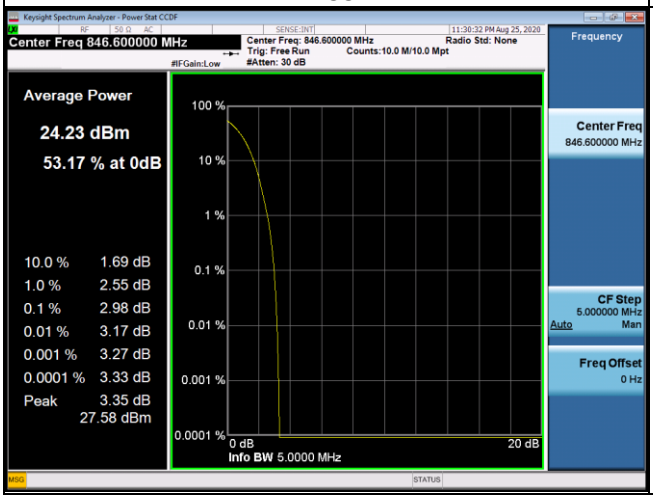
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	847.8250	-19.16	33.79	14.63	38.45	-23.82	peak	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

APPENDIX E BAND EDGE

WCDMA Band V_WCDMA Spectrum Plot			
Channel	4132	Channel	4233
			

APPENDIX F PEAK TO AVERAGE RATIO

WCDMA Band V_WCDMA Spectrum Plot	
4132	4182
	
4233	-
	

APPENDIX G FREQOENCY STABILITY

Test Mode	WCDMA Band V

Voltage	Frequency Error(ppm)	Limit(ppm)
	WCDMA	
High Voltage	0.0016	2.5
Normal Voltage	0.0054	2.5
Low Voltage	0.0009	2.5

Temp	Frequency Error(ppm)	Limit(ppm)
	WCDMA	
-30	-0.0043	2.5
-20	-0.0037	2.5
-10	-0.0021	2.5
0	-0.0028	2.5
10	0.0024	2.5
20	0.0062	2.5
30	-0.0032	2.5
40	0.0041	2.5
50	0.0026	2.5

End of Test Report