

🥇 Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Report No: CCIS15110090302

FCC REPORT

(BLE)

Applicant: Antel Communications LLC

Address of Applicant: 21 Bennetts Road, Suite 201, Setauket, NY 11733, USA

Equipment Under Test (EUT)

Product Name: smart phone

Model No.: AL501

Trade mark: Avantel

FCC ID: 2AE62AL501

Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247

Date of sample receipt: 23 Nov., 2015

Date of Test: 23 Nov., to 21 Dec., 2015

Date of report issued: 21 Dec., 2015

Test Result: PASS *

Authorized Signature:



Bruce Zhang Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

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





2 Version

Version No.	Date	Description
00	21 Dec., 2015	Original

Tested by: Date: 21 Dec., 2015

Test Engineer

Reviewed by: 21 Dec., 2015

Project Engineer



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4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203/15.247 (c)	Pass
AC Power Line Conducted Emission	15.207	Pass
Conducted Peak Output Power	15.247 (b)(3)	Pass
6dB Emission Bandwidth	15.247 (a)(2)	Pass
Power Spectral Density	15.247 (e)	Pass
Band Edge	15.247(d)	Pass
Spurious Emission	15.205/15.209	Pass

Pass: The EUT complies with the essential requirements in the standard.





5 General Information

5.1 Client Information

Applicant:	Antel Communications LLC		
Address of Applicant:	21 Bennetts Road, Suite 201, Setauket, NY 11733, USA		
Manufacturer:	AMER Mobile Technology Co.,LTD		
Address of Manufacturer:	17F, Tower B, HuiHai Center, Chuangye Road no.1,Longhua new district, Shenzhen. China.		

5.2 General Description of E.U.T.

Product Name:	smart phone			
Model No.:	AL501			
Operation Frequency:	2402-2480 MHz			
Channel numbers:	40			
Channel separation:	2 MHz			
Modulation technology:	GFSK			
Data speed :	1Mbps			
Antenna Type:	Internal Antenna			
Antenna gain:	0.53 dBi			
Power supply:	Rechargeable Li-ion Battery DC3.7V-2150mAh			
AC adapter:	Model: AL501			
	Input:100-240V AC, 50/60Hz 0.15A			
	Output:5V DC MAX 1000mA			





Operation Frequency each of channel									
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency		
0	2402MHz	10	2422MHz	20	2442MHz	30	2462MHz		
1	2404MHz	11	2424MHz	21	2444MHz	31	2464MHz		
2	2406MHz	12	2426MHz	22	2446MHz	32	2466MHz		
3	2408MHz	13	2428MHz	23	2448MHz	33	2468MHz		
4	2410MHz	14	2430MHz	24	2450MHz	34	2470MHz		
5	2412MHz	15	2432MHz	25	2452MHz	35	2472MHz		
6	2414MHz	16	2434MHz	26	2454MHz	36	2474MHz		
7	2416MHz	17	2436MHz	27	2456MHz	37	2476MHz		
8	2418MHz	18	2438MHz	28	2458MHz	38	2478MHz		
9	2420MHz	19	2440MHz	29	2460MHz	39	2480MHz		

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The lowest channel	2402MHz
The middle channel	2442MHz
The Highest channel	2480MHz



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5.3 Test environment and mode

Operating Environment:						
Temperature:	24.0 °C					
Humidity:	54 % RH					
Atmospheric Pressure:	1010 mbar					
Test mode:	Test mode:					
Operation mode	Keep the EUT in continuous transmitting with modulation					

The sample was placed 0.8m above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages. Duty cycle setting during the transmission is 100% with maximum power setting for all modulations.

5.4 Description of Support Units

N/A

5.5 Laboratory Facility

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

• FCC - Registration No.: 817957

Shenzhen Zhongjian Nanfang Testing Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in out files. Registration 817957, February 27, 2012.

• IC - Registration No.: 10106A-1

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

• CNAS - Registration No.: CNAS L6048

Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048.

5.6 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Address: No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,

Bao'an District, Shenzhen, Guangdong, China

Tel: +86-755-23118282 Fax: +86-755-23116366

Shenzhen Zhongjian Nanfang Testing Co., Ltd.
No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,
Bao'an District, Shenzhen, Guangdong, China
Telephone: +86 (0) 755 23118282 Fax: +86 (0) 755 23116366





5.7 Test Instruments list

Radiated Emission:								
Item	tem Test Equipment Manufactur		Model No.	Inventory No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)		
1	3m SAC	SAEMC	9(L)*6(W)* 6(H)	CCIS0001	08-23-2014	08-22-2017		
2	BiConiLog Antenna	SCHWARZBECK	VULB9163	CCIS0005	03-28-2015	03-28-2016		
3	Horn Antenna	SCHWARZBECK	BBHA9120D	CCIS0006	03-28-2015	03-28-2016		
4	Pre-amplifier (10kHz-1.3GHz)	HP	8447D	CCIS0003	04-01-2015	03-31-2016		
5	Pre-amplifier (1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	04-01-2015	03-31-2016		
6	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	04-01-2015	03-31-2016		
7	Horn Antenna	ETS-LINDGREN	3160	GTS217	04-01-2015	03-31-2016		
8	Spectrum analyzer 9k-30GHz Rohde & Schwarz		FSP30	CCIS0023	03-28-2015	03-28-2016		
9	9 EMI Test Receiver Rohde & Schwarz		ESRP7	CCIS0167	03-28-2015	03-28-2016		
10	Loop antenna	Laplace instrument	RF300	EMC0701	04-01-2015	03-31-2016		

Con	Conducted Emission:									
Item	Test Equipment	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)							
1	Shielding Room	ZhongShuo Electron	11.0(L)x4.0(W)x3.0(H)	CCIS0061	11-10-2013	11-09-2016				
2	EMI Test Receiver Rohde & Schwarz		ESCI	CCIS0002	03-28-2015	03-28-2016				
3	LISN	CHASE	MN2050D	CCIS0074	03-28-2015	03-28-2016				
4	Coaxial Cable	CCIS	N/A	CCIS0086	04-01-2015	03-31-2016				
5	EMI Test Software	AUDIX	E3	N/A	N/A	N/A				



Test results and Measurement Data 6

6.1 Antenna requirement:

Standard requirement: FCC Part 15 C Section 15.203 /247(c)

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.

15.247(c) (1)(i) requirement:

(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

E.U.T Antenna:

The BLE antenna is an internal antenna which cannot replace by end-user, the best case gain of the antenna is 0.53 dBi.







6.2 Conducted Emission

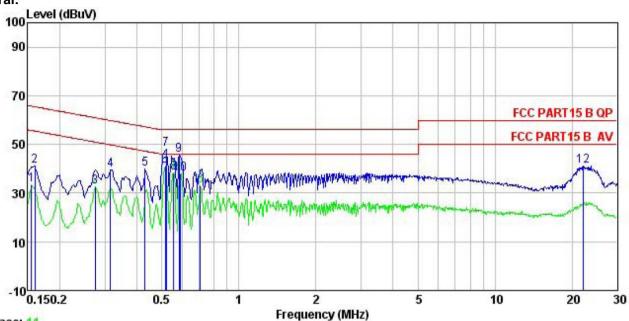
 2 Conducted Emission							
Test Requirement:	FCC Part 15 C Section 15.207						
Test Method:	ANSI C63.4: 2009						
Test Frequency Range:	150 kHz to 30 MHz						
Class / Severity:	Class B						
Receiver setup:	RBW=9kHz, VBW=30kHz						
Limit:	Limit (dBuV)						
	Frequency range (MHz) Quasi-peak Average						
	0.15-0.5 66 to 56* 56 to 46*						
	0.5-5 56 46						
	5-30 60 50						
Test procedure Test setup:	 Decreases with the logarithm of the frequency. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.), which provides a 500hm/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 500hm/50uH coupling impedance with 500hm termination. (Please refer to the block diagram of the test setup and photographs). Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2009 on conducted measurement. 						
	Reference Plane LISN 40cm 80cm Filter AC power Equipment Test table/Insulation plane Remark E.U.T: Equipment Under Test LISN: Line Impedence Stabilization Network Test table height=0.8m						
Test Uncertainty:	±3.28 dB						
Test Instruments:	Refer to section 5.7 for details						
Test mode:	Refer to section 5.3 for details						
Test results:	Passed						

Measurement Data









Trace: 11

Site

: CCIS Shielding Room : FCC PART15 B QP LISN NEUTRAL Condition

EUT Smart Phone : AL501 Model Test Mode : BLE mode
Power Rating : AC 120V/60Hz
Environment : Temp: 23 °C Huni:56% Atmos:101KPa

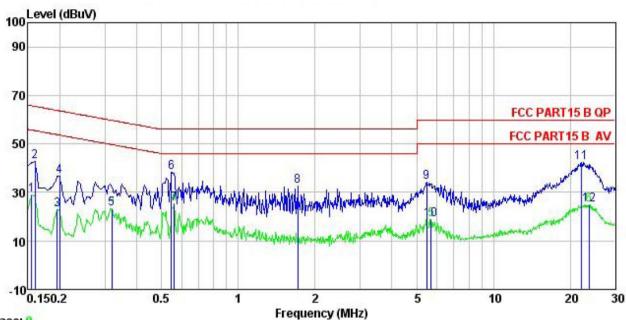
Test Engineer: MT

Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
MHz	—dBu₹	<u>dB</u>		dBu₹	—dBu⊽	<u>d</u> B	
0.155	22.22	0.25	10.78	33.25	55.74	-22.49	Average
0.160	30.01	0.25	10.78	41.04	65.47	-24.43	QP
0.274	21.45	0.26	10.74	32.45	50.98	-18.53	Average
0.315	28.72	0.26	10.74	39.72	59.84	-20.12	QP
0.431	28.85	0.26	10.73	39.84	57.24	-17.40	QP
0.516	30.10	0.28	10.76	41.14	46.00	-4.86	Average
0.521	36.98	0.28	10.76	48.02	56.00	-7.98	QP
0.555	27.26	0.26	10.77	38.29	46.00	-7.71	Average
0.585	34.64	0.24	10.77	45.65	56.00	-10.35	QP
0.589	26.94	0.24	10.77	37.95	46.00	-8.05	Average
0.708	21.95	0.18	10.77	32.90	46.00	-13.10	Average
22.180	29.74	0.36	10.90	41.00	60.00	-19.00	QP
	MHz 0. 155 0. 160 0. 274 0. 315 0. 431 0. 516 0. 521 0. 555 0. 585 0. 589 0. 708	MHz dBuV 0.155 22.22 0.160 30.01 0.274 21.45 0.315 28.72 0.431 28.85 0.516 30.10 0.521 36.98 0.555 27.26 0.585 34.64 0.589 26.94 0.708 21.95	Freq Level Factor MHz dBuV dB 0.155 22.22 0.25 0.160 30.01 0.25 0.274 21.45 0.26 0.315 28.72 0.26 0.431 28.85 0.26 0.516 30.10 0.28 0.521 36.98 0.28 0.555 27.26 0.26 0.585 34.64 0.24 0.589 26.94 0.24 0.708 21.95 0.18	Freq Level Factor Loss MHz dBuV dB dB	MHz dBuV dB dB dBuV 0.155 22.22 0.25 10.78 33.25 0.160 30.01 0.25 10.78 41.04 0.274 21.45 0.26 10.74 32.45 0.315 28.72 0.26 10.74 39.72 0.431 28.85 0.26 10.73 39.84 0.516 30.10 0.28 10.76 41.14 0.521 36.98 0.28 10.76 48.02 0.585 27.26 0.26 10.77 38.29 0.585 34.64 0.24 10.77 45.65 0.589 26.94 0.24 10.77 37.95 0.708 21.95 0.18 10.77 32.90	Freq Level Factor Loss Level Line MHz dBuV dB dB dBuV dBuV	MHz dBuV dB dB dBuV dBuV dB 0.155 22.22 0.25 10.78 33.25 55.74 -22.49 0.160 30.01 0.25 10.78 41.04 65.47 -24.43 0.274 21.45 0.26 10.74 32.45 50.98 -18.53 0.315 28.72 0.26 10.74 39.72 59.84 -20.12 0.431 28.85 0.26 10.73 39.84 57.24 -17.40 0.516 30.10 0.28 10.76 41.14 46.00 -4.86 0.521 36.98 0.28 10.76 48.02 56.00 -7.98 0.555 27.26 0.26 10.77 38.29 46.00 -7.71 0.585 34.64 0.24 10.77 45.65 56.00 -10.35 0.589 26.94 0.24 10.77 37.95 46.00 -8.05 0.708 21.95 0.18





Line:



Trace: 9

: CCIS Shielding Room

Site Condition : FCC PART15 B QP LISN LINE

EUT : Smart Phone Model AL501

Test Mode : BLE mode Power Rating : AC 120V/60Hz

Environment : Temp: 23 °C Huni: 56% Atmos: 101KPa

Test Engineer: MT

Remark

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBu∜	dB		dBu∀	dBu∜	<u>dB</u>	
1	0.155	18.03	0.27	10.78	29.08	55.74	-26.66	Average
2	0.160	31.75	0.27	10.78	42.80	65.47	-22.67	QP
3	0.195	11.69	0.28	10.76	22.73	53.80	-31.07	Average
4	0.200	25.63	0.28	10.76	36.67	63.62	-26.95	QP
2 3 4 5 6 7 8 9	0.320	12.25	0.26	10.74	23.25	49.71	-26.46	Average
6	0.546	27.40	0.27	10.76	38.43	56.00	-17.57	QP
7	0.561	14.25	0.27	10.77	25.29	46.00	-20.71	Average
8	1.707	21.29	0.26	10.94	32.49	56.00	-23.51	QP
9	5.476	23.03	0.30	10.84	34.17	60.00	-25.83	QP
10	5.683	7.67	0.30	10.83	18.80	50.00	-31.20	Average
11	22.063	30.97	0.42	10.90	42.29	60.00	-17.71	QP
12	23.636	13.70	0.47	10.88	25.05	50.00	-24.95	Average

Notes:

- 1. An initial pre-scan was performed on the live and neutral lines with peak detector.
- 2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3. Final Level =Receiver Read level + LISN Factor + Cable Loss





6.3 Conducted Output Power

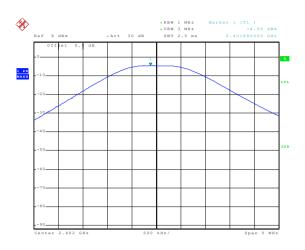
Test Requirement:	FCC Part 15 C Section 15.247 (b)(3)
Test Method:	ANSI C63.10:2009 and KDB558074v03r03 section 9.2.2
Limit:	30dBm
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

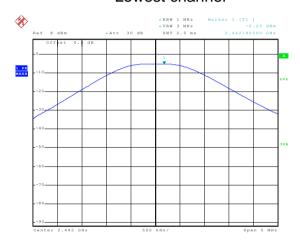
Test CH	Maximum Conducted Output Power (dBm)	Limit(dBm)	Result
Lowest	-4.55		
Middle	-5.23	30.00	Pass
Highest	-3.63		

Test plot as follows:

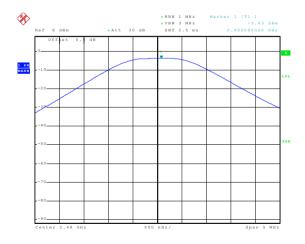




Lowest channel



Date: 25.NOV.2015 23:52:23 Middle channel



Highest channel



6.4 Occupy Bandwidth

Test Requirement:	FCC Part 15 C Section 15.247 (a)(2)					
Test Method:	ANSI C63.10:2009 and KDB558074v03r03 section 8.1					
Limit:	>500kHz					
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane					
Test Instruments:	Refer to section 5.7 for details					
Test mode:	Refer to section 5.3 for details					
Test results:	Passed					

Measurement Data

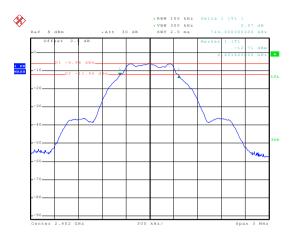
Test CH	6dB Emission Bandwidth (MHz)	Limit(kHz)	Result
Lowest	0.744		
Middle	0.738	>500	Pass
Highest	0.738		

Test CH	99% Occupy Bandwidth (MHz)	Limit(kHz)	Result
Lowest	1.026		
Middle	1.026	N/A	N/A
Highest	1.032		

Test plot as follows:

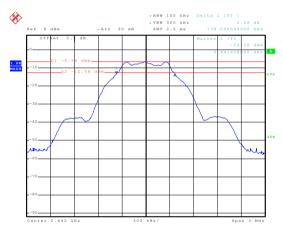


6dB EBW



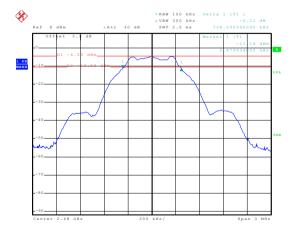
Date: 25.NOV.2015 23:55:24

Lowest channel



Date: 25.NOV.2015 23:56:51

Middle channel

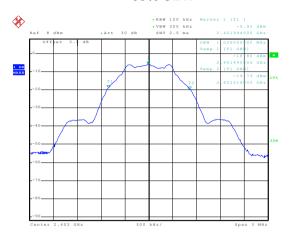


Date: 25.NOV.2015 23:57:55

Highest channel

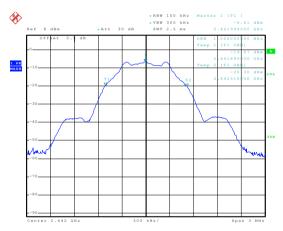


99% OBW



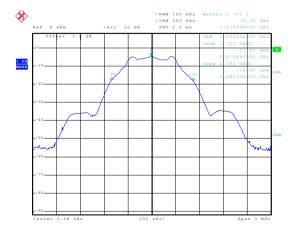
Date: 26.NOV.2015 00:01:01

Lowest channel



Date: 25.NOV.2015 23:59:05

Middle channel



Date: 25.NOV.2015 23:58:39

Highest channel



6.5 Power Spectral Density

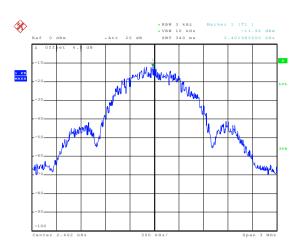
Test Requirement:	FCC Part 15 C Section 15.247 (e)					
Test Method:	ANSI C63.10:2009 and KDB558074v03r03 section 10.2					
Limit:	8 dBm					
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane					
Test Instruments:	Refer to section 5.7 for details					
Test mode:	Refer to section 5.3 for details					
Test results:	Passed					

Measurement Data

Test CH	Power Spectral Density (dBm)	Limit(dBm)	Result
Lowest	-11.92		
Middle	-13.03	8.00	Pass
Highest	-12.30		

Test plots as follow:





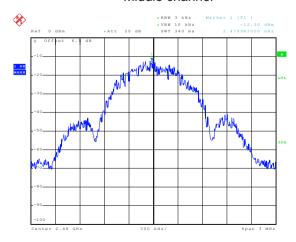
Date: 14.DEC.2015 11:15:03

Lowest channel



Date: 14.DEC.2015 11:15:28

Middle channel



Date: 14.DEC.2015 11:15:49

Highest channel





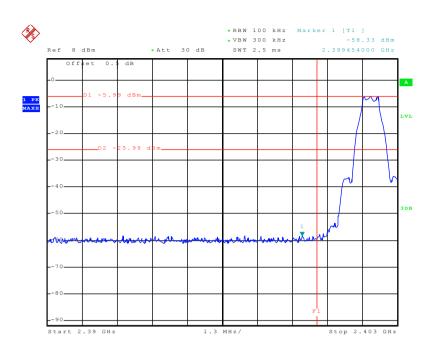
6.6 Band Edge

6.6.1 Conducted Emission Method

Test Requirement:	FCC Part 15 C Section 15.247 (d)					
Test Method:	ANSI C63.10:2009 and KDB558074v03r03 section 13					
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.					
Test setup:						
	Spectrum Analyzer					
	E.U.T					
	Non-Conducted Table					
	Ground Reference Plane					
Test Instruments:	Refer to section 5.7 for details					
Test mode:	Refer to section 5.3 for details					
Test results:	Passed					

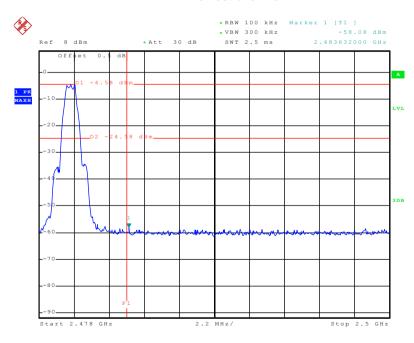
Test plots as follow:





Date: 26.NOV.2015 00:04:20

Lowest channel



Date: 26.NOV.2015 00:05:45

Highest channel





6.6.2 Radiated Emission Method

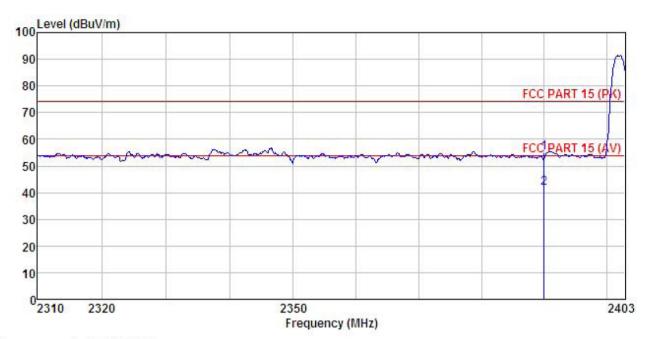
Test Requirement:	FCC Part 15 C				
Test Method:	ANSI C63.10: 2	013 and KDI	B 558074v03r	03 section	12.1
Test Frequency Range:	2.3GHz to 2.5G	Hz			
Test site:	Measurement D	istance: 3m			
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	Above 1GHz	Peak RMS	1MHz 1MHz	3MHz 3MHz	Peak Value Average Value
Limit:	Freque		Limit (dBuV/		Remark
Ziiiii.	Above 1		54.0		Average Value
			74.0		Peak Value
Test Procedure:	the ground to determin 2. The EUT wantenna, watower. 3. The antennathe ground Both horizon make the make the make the make the make and to find the solution of the EUT have 10 determined to determine the solution of the EUT have 10 determined to determine the solution of the EUT have 10 determined to determine the solution of the EUT have 10 determined to determine the solution of the EUT have 10 determined to determine the solution of the EUT have 10 determined to determine the solution of the EUT have 10 determined to determine the solution of the EUT have 10 determined to determine the solution of the EUT have 10 determined to determine the solution of the EUT have 10 determined to determine the solution of the EUT have 10 determined to determine the solution of the EUT have 10 determined to determine the solution of the EUT have 10 determined to determine the solution of the EUT have 10 determined to determine the solution of the EUT have 10 determined to determine the solution of the EUT have 10 determined to determine the solution of the EUT have 10 determined to determine the solution of the EUT have 10 determined to determine the solution of the EUT have 10 determined to determine the solution of the EUT have 10 determined to determine the solution of the EUT have 10 determined to determine the solution of the EUT have 10 determined to determine the solution of the EUT have 10 determined to determine the solution of the EUT have 10 determined to determine the solution of the EUT have 10 determined to determine the solution of the EUT have 10 determined to determine the solution of the EUT have 10 determined the EUT have 10	at a 3 meter ne the position was set 3 meter which was more thich was more to determine ontal and vert neasurement uspected eminen the anten the rota table maximum reaceiver system and width with sion level of the cified, then the would be repart of the system of the	camber. The top of the highesters away from unted on the top of the maximum ical polarization. It is sion, the EU in a was turned to it is set to Polarization. In was set to Polarization in was set to Polarization in was set to Polarization in peatesting could be orted. Otherwold be re-tested.	table was rost radiation. The interfer op of a variation are meter to for a value of the ons of the are to heights from 0 degreeak Detect old Mode. It is mode was the stopped it is the emit one by one of the o	rence-receiving able-height antenna our meters above the field strength. Intenna are set to anged to its worst from 1 meter to 4 thees to 360 degrees
Test setup:	AE SOCIM (To	EUT Growntable) Growntable	Horn Ante	Antenna To Controller	wer
Test Instruments:	Refer to section	5.7 for detail	s		
Test mode:	Refer to section	5.3 for detail	s		
Test results:	Passed				





Test channel: Lowest

Horizontal:



Site : 3m chamber

Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) HORIZONTAL

EUT : smart phone : AL501 : BLE-L Mode Model

Test mode Power Rating : AC120V/60Hz

Environment : Temp: 25.5°C Huni: 55%

Test Engineer: MT REMARK

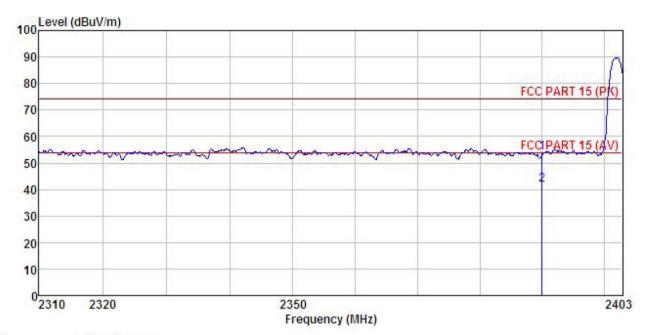
	Freq		Antenna Factor						
-	MHz	—dBuV	<u>dB</u> /m	<u>d</u> B	<u>ab</u>	dBuV/m	dBuV/m	<u>dB</u>	
	2390.000 2390.000					54.80 41.72			





Test channel: Lowest

Vertical:



Site

: 3m chamber : FCC PART 15 (PK) 3m BBHA9120(1G18) VERTICAL Condition

: smart phone EUT : AL501 Model Test mode : BLE-L Mode Power Rating : AC120V/60Hz Environment : Temp:25.5°C

Huni:55%

Test Engineer: MT REMARK :

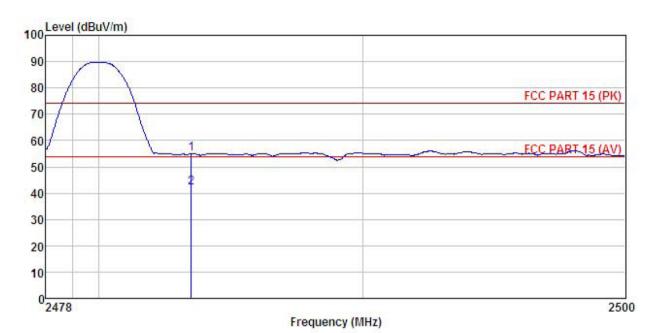
		Read	Antenna	Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark	
-	MHz	dBu√	<u>dB</u> /π	<u>ab</u>	<u>dB</u>	$\overline{dBuV/m}$	$\overline{dBuV/m}$	<u>dB</u>		
1	2390.000	19.60	27.58	6.63	0.00	53.81	74.00	-20.19	Peak	
2	2390, 000	7, 53	27, 58	6, 63	0.00	41.74	54,00	-12.26	Average	





Test channel: Highest

Horizontal:



Site

: 3m chamber : FCC PART 15 (PK) 3m BBHA9120(1G18) HORIZONTAL Condition

EUT : smart phone Model : AL501 Test mode : BLE-H Mode Power Rating : AC120V/60Hz

Test Engineer: MT REMARK Environment : Temp: 25.5°C Huni:55%

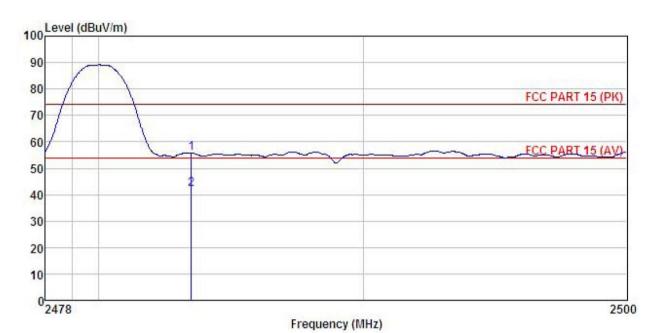
	2000		Antenna Factor						Remark
	MHz	——dBu∇	— <u>dB</u> /m	d <u>B</u>	<u>d</u> B	dBuV/m	dBuV/m	<u>d</u> B	
l	2483.500 2483.500								





Test channel: Highest

Vertical:



Site

: 3m chamber : FCC PART 15 (PK) 3m BBHA9120(1G18) VERTICAL Condition

EUT : smart phone : AL501 Model Test mode : BLE-H Mode Power Rating : AC120V/60Hz

Environment : Temp: 25.5°C Huni:55%

Test Engineer: MT

REMARK

		Read	Ant enna	Cable	Preamp		Limit	Over	
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
à	MHz	dBu₹	<u>dB</u> /m	<u>d</u> B	<u>dB</u>	dBuV/m	dBuV/m	<u>dB</u>	
1	2483.500	21.32	27.52	6.85	0.00	55.69	74.00	-18.31	Peak
2	2483 500	7 85	27 52	6 85	0.00	42 22	54 00	-11 78	Average



6.7 Spurious Emission

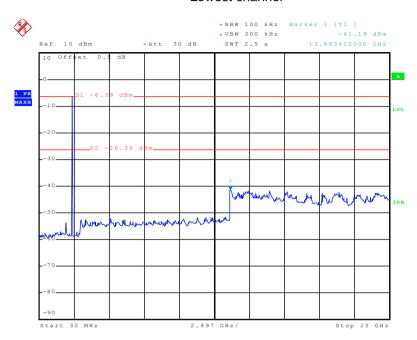
6.7.1 Conducted Emission Method

Test Requirement:	FCC Part 15 C Section 15.247 (d)						
Test Method:	ANSI C63.10:2009 and KDB558074 section 11						
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.						
Test setup:							
	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane						
Test Instruments:	Refer to section 5.7 for details						
Test mode:	Refer to section 5.7 for details						
Test results:	Passed						

Test plot as follows:



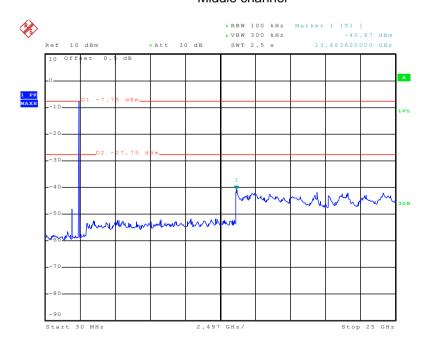
Lowest channel



Date: 26.NOV.2015 00:10:27

30MHz~25GHz

Middle channel

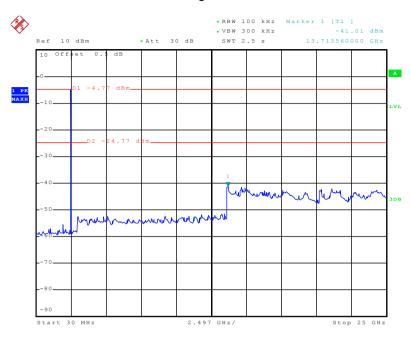


Date: 26.NOV.2015 00:08:52

30MHz~25GHz



Highest channel



Date: 26.NOV.2015 00:07:44

30MHz~25GHz



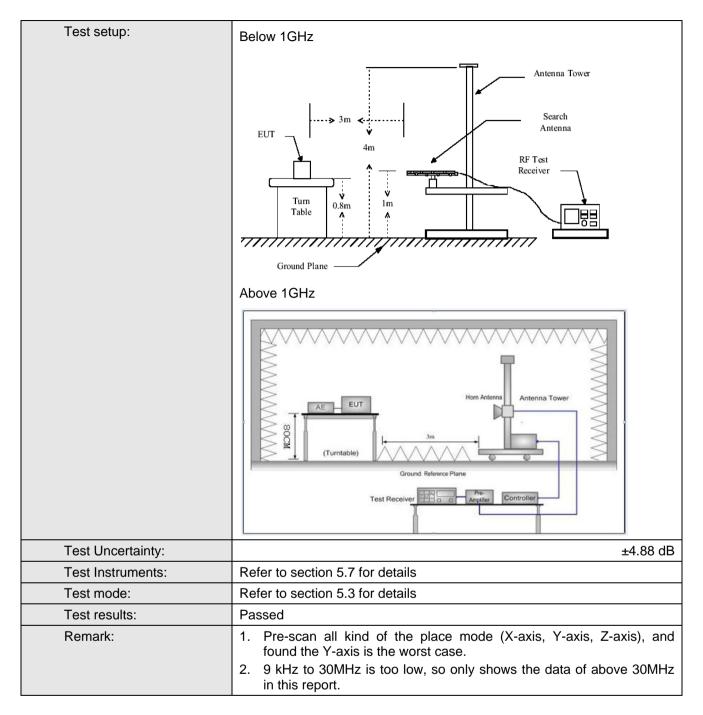


6.7.2 Radiated Emission Method

Test Requirement:	FCC Part 15 C Section 15.209 and 15.205								
Test Method:	ANSI C63.10:2009								
Test Frequency Range:	9KHz to 25GHz								
Test site:	Measurement Distance: 3m								
Receiver setup:	Frequency	Remark							
·	30MHz-1GHz	Quasi-peak Value							
	Above 1GHz	Peak	1MHz	3MHz	Peak Value				
	Above 10112	RMS	1MHz	3MHz	Average Value				
Limit:	Frequency		Limit (dBuV/m	@3m)	Remark				
	30MHz-88MHz		40.0		Quasi-peak Value				
	88MHz-216MHz		43.5		Quasi-peak Value				
	216MHz-960MH	z	46.0		Quasi-peak Value				
	960MHz-1GHz		54.0		Quasi-peak Value				
	Above 1GHz		54.0		Average Value				
			74.0		Peak Value				
Test Procedure:	the ground to determin 2. The EUT of antenna, we tower. 3. The antenry the ground Both horizon make the notes and to find the notes are specified E. 5. The test-results specified E. 6. If the emission the limit specified EUT have 10 dE	at a 3 meter the the position was set 3 meter was set 3 meter was more than the to determine the the anter the the the anter the	camber. The n of the highest neters away funted on the transition of the maximulatical polarization of the maximulatical polarization of the maximulatical polarization of the maximulation of the maximum Hamilton of the EUT in percentage of the ported. Other old be re-tested to the maximum of the EUT in percentage of the maximum of the maxi	table was a stradiation. The incomposition of a variance meter to the incomposition of the in	le 0.8 meters above rotated 360 degrees terference-receiving able-height antenna of four meters above of the field strength, antenna are set to tranged to its worst is from 1 meter to 4 rees to 360 degrees etect Function and as 10 dB lower than and the peak values missions that did not e using peak, quasing reported in a data				





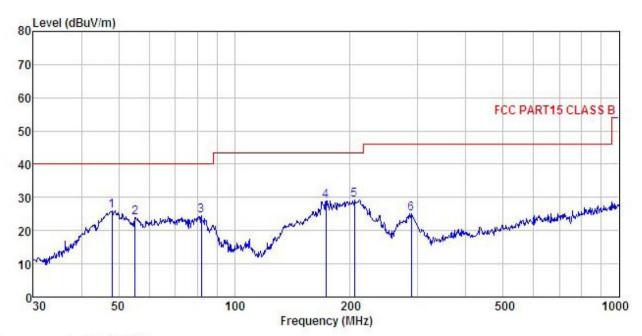






Below 1GHz

Horizontal:



Site

: 3m chamber : FCC PART15 CLASS B 3m VULB9163(30M1G) HORIZONTAL Condition

EUT : smart phone Model : AL501 Test mode : BLE Mode Power Rating : AC120V/60Hz

Environment : Temp: 25.5°C Huni:55%

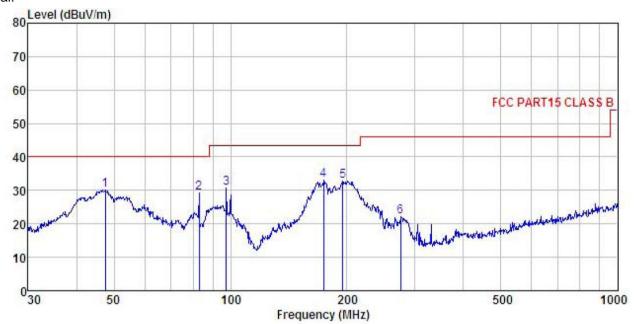
Test Engineer: MT REMARK :

CHICATOR.	•								
	Freq		Antenna Factor					Over Limit	Remark
_	MHz	dBu₹	— <u>d</u> B/π		<u>ab</u>	$\overline{dBuV/m}$	$\overline{dBuV/m}$	<u>dB</u>	
1	47.994	41.91	13.36	0.59	29.84	26.02	40.00	-13.98	QP
2	55.221	40.10	13.03	0.65	29.80	23.98	40.00	-16.02	QP
3	82.071	43.93	9.28	0.86	29.62	24.45	40.00	-15.55	QP
4	173.205	47.49	9.16	1.35	29.02	28.98	43.50	-14.52	QP
1 2 3 4 5 6	204.955	45.86	10.74	1.41	28.80	29.21	43.50	-14.29	QP
6	287.990	39.00	12.84	1.74	28.47	25.11	46.00	-20.89	QP





Vertical:



Site

: 3m chamber : FCC PART15 CLASS B 3m VULB9163(30M1G) VERTICAL Condition

EUT : smart phone Model : AL501 Test mode : BLE Mode Power Rating : AC120V/60Hz Environment : Temp:25.5°C

Huni:55%

Test Engineer: MT REMARK :

Frea							Over Limit	Remark
MHz	dBu₹	dB/π	₫B	dB	dBu√/m	dBuV/m	dB	
47.492	46.04	13.41	0.59	29.84	30.20	40.00	-9.80	QP
82.938	48.26	9.57	0.87	29.62	29.08	40.00	-10.92	QP
97.456	46.43	13.00	0.94	29.54	30.83	43.50	-12.67	QP
173.814	51.46	9.23	1.35	29.02	33.02	43.50	-10.48	QP
195.137	49.56	10.57	1.37	28.86	32.64	43.50	-10.86	QP
275.157	36.31	12.55	1.70	28.49	22.07	46.00	-23.93	QP
	MHz 47.492 82.938 97.456 173.814 195.137	Freq Level MHz dBuV 47.492 46.04 82.938 48.26 97.456 46.43 173.814 51.46 195.137 49.56	Freq Level Factor MHz dBuV dB/m 47.492 46.04 13.41 82.938 48.26 9.57 97.456 46.43 13.00 173.814 51.46 9.23 195.137 49.56 10.57	Freq Level Factor Loss MHz dBuV dB/m dB 47.492 46.04 13.41 0.59 82.938 48.26 9.57 0.87 97.456 46.43 13.00 0.94 173.814 51.46 9.23 1.35 195.137 49.56 10.57 1.37	Freq Level Factor Loss Factor MHz dBuV dB/m dB dB 47.492 46.04 13.41 0.59 29.84 82.938 48.26 9.57 0.87 29.62 97.456 46.43 13.00 0.94 29.54 173.814 51.46 9.23 1.35 29.02 195.137 49.56 10.57 1.37 28.86	MHz dBuV dB/m dB dB dB dBuV/m 47.492 46.04 13.41 0.59 29.84 30.20 82.938 48.26 9.57 0.87 29.62 29.08 97.456 46.43 13.00 0.94 29.54 30.83 173.814 51.46 9.23 1.35 29.02 33.02 195.137 49.56 10.57 1.37 28.86 32.64	MHz dBuV dB/m dB dB dBuV/m dBuV/m 47.492 46.04 13.41 0.59 29.84 30.20 40.00 82.938 48.26 9.57 0.87 29.62 29.08 40.00 97.456 46.43 13.00 0.94 29.54 30.83 43.50 173.814 51.46 9.23 1.35 29.02 33.02 43.50 195.137 49.56 10.57 1.37 28.86 32.64 43.50	Freq Level Factor Loss Factor Level Line Limit MHz dBuV dB/m dB dB dBuV/m dBuV/m dBuV/m dB 47.492 46.04 13.41 0.59 29.84 30.20 40.00 -9.80 82.938 48.26 9.57 0.87 29.62 29.08 40.00 -10.92 97.456 46.43 13.00 0.94 29.54 30.83 43.50 -12.67 173.814 51.46 9.23 1.35 29.02 33.02 43.50 -10.48 195.137 49.56 10.57 1.37 28.86 32.64 43.50 -10.86



Above 1GHz

Test channel:			Lo	west	Le	vel:	Peak	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4804.00	46.04	31.53	10.57	40.24	47.90	74.00	-26.10	Vertical
4804.00	45.58	31.53	10.57	40.24	47.44	74.00	-26.56	Horizontal
T	est channel		Lo	west	Le	vel:	A۱	verage
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4804.00	37.59	31.53	10.57	40.24	39.45	54.00	-14.55	Vertical
4804.00	36.25	31.53	10.57	40.24	38.11	54.00	-15.89	Horizontal

Т	:	Middle		Le	vel:	Peak		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4884.00	45.81	31.58	10.66	40.15	47.40	74.00	-26.60	Vertical
4884.00	45.31	31.58	10.66	40.15	2.09	74.00	-71.91	Horizontal
Т	est channel	•	Middle		Le	vel:	Average	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4884.00	36.62	31.58	10.66	40.15	38.71	54.00	-15.29	Vertical
4884.00	36.59	31.58	10.66	40.15	38.68	54.00	-15.32	Horizontal

Т	est channel	:	Hiç	Highest		vel:	Peak		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	
4960.00	44.41	31.69	10.73	40.03	46.80	74.00	-27.20	Vertical	
4960.00	45.64	31.69	10.73	40.03	48.03	74.00	-25.97	Horizontal	
Т	est channel	•	Hiç	ghest	Le	vel:	A۱	verage	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	
4960.00	35.58	31.69	10.73	40.03	37.97	54.00	-16.03	Vertical	
4960.00	36.74	31.69	10.73	40.03	39.13	54.00	-14.87	Horizontal	

Remark:

- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.

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