

Shenzhen Toby Technology Co., Ltd.

Report No.: TB-FCC149270

Page: 1 of 35

FCC Radio Test Report FCC ID: 2AJED-NATYA

Report No. : TB-FCC149270

Applicant: KAMSUT Inc.dba THE KAMA SUTRA COMPANY

Equipment Under Test (EUT)

EUT Name : NATYA

Model No. : 20005BLK

Serial No. : 20010PPL, 20014PNK, 20019, 52006T, 52007T, 52005T, 52051T,

52052T, 52050T

Brand Name : RHYTHM by Kama Sutra

Receipt Date : 2016-09-04

Test Date : 2016-09-05 to 2016-09-27

Issue Date : 2016-09-28

Standards : FCC Part 15, Subpart C (15.231(a):2015)

Test Method : ANSI C63.10:2013

Conclusions : PASS

In the configuration tested, the EUT complied with the standards specified above,

The EUT technically complies with the FCC requirements

Test/Witness Engineer :

Approved& Authorized :

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. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.

TB-RF-074-1.0



2 of 35

Contents

TOBY

CON	NTENTS	2
1.	GENERAL INFORMATION ABOUT EUT	4
	1.1 Client Information	4
	1.2 General Description of EUT (Equipment Under Test)	
	1.3 Block Diagram Showing the Configuration of System Tested	
	1.4 Description of Support Units	
	1.5 Description of Test Mode	6
	1.6 Description of Test Software Setting	6
	1.7 Measurement Uncertainty	7
	1.8 Test Facility	7
2.	TEST SUMMARY	8
3.	TEST EQUIPMENT	9
4.	CONDUCTED EMISSION TEST	10
	4.1 Test Standard and Limit	10
	4.2 Test Setup	
	4.3 Test Procedure	
	4.4 Test Data	11
5.	RADIATED EMISSION TEST	16
	5.1 Test Standard and Limit	16
	5.2 Test Setup	17
	5.3 Test Procedure	18
	5.4 EUT Operating Condition	19
	5.5 Test Data	20
6.	BANDWIDTH	26
	6.1 Test Standard and Limit	26
	6.2 Test Setup	26
	6.3 Test Procedure	26
	6.4 EUT Operating Condition	
	6.5 Test Condition	26
	6.6 Test Data	27
7.	RELEASE TIME MEASUREMENT	28
	7.1 Test Standard and Limit	28
	7.2 Test Setup	28
	7.3 Test Procedure	28
	7.4 EUT Operating Condition	
	7.5 Test Condition	
	7.6 Test Data	29
8.	DUTY CYCLE	30



Page: 3 of 35

30	8.1 Test Standard and Limit	30
	8.2 Test Setup	30
	8.3 Test Procedure	30
	8.4 EUT Operating Condition	30
	8.5 Test Condition	
	8.6 Test Data	31
9.	ANTENNA REQUIREMENT	35
	9.1 Standard Requirement	35
	9.2 Antenna Connected Construction	35



Page: 4 of 35

1. General Information about EUT

1.1 Client Information

Applicant : KAMSUT Inc.dba THE KAMA SUTRA COMPANY		
Address : 2151 Anchor Court, Thousand Oaks, California, 91320, USA		
Manufacturer		KAMSUT Inc.dba THE KAMA SUTRA COMPANY
Address		2151 Anchor Court, Thousand Oaks, California, 91320, USA

1.2 General Description of EUT (Equipment Under Test)

EUT Name	÷	NATYA		
Models No.		20005BLK, 20010PPL, 20014PNK, 20019, 52006T, 52007T, 52005T, 52051T, 52052T, 52050T		
Model Difference	:	All these models are identical in the same PCB, layout and electrical circuit, the only difference is model name for commercial.		
011177		Operation Frequency:	433.92 MHz	
Product Description		Out Power:	79.40 dBuV/m (PK Max.) 73.98 dBuV/m (AV Max.)	
WURT		Antenna Gain:	Integral Antenna(0 dBi)	
3 6	1	Modulation Type:	ASK	
Power Supply	:	DC power by USB cable. DC power by Li-ion battery.		
Power Rating		DC 5V by USB Cable. DC 3.7V by 250mAh Li-io	n Battery.	
Connecting I/O Port(S)	:	Please refer to the User's	Manual	

Note:

(1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

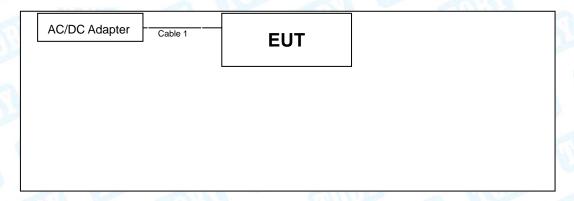


Page:

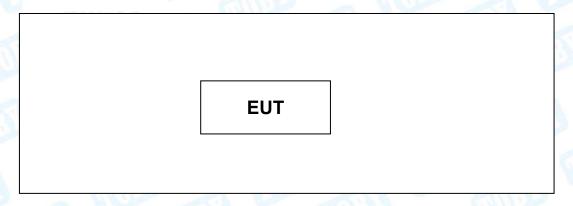
5 of 35

1.3 Block Diagram Showing the Configuration of System Tested

Charging Mode



TX Mode



1.4 Description of Support Units

Equipment Information								
Name Model FCC ID/DOC Manufacturer Used "√"								
AC/DC Adapter	TEKA012	1133	TEKA	√				
		Cable Informat	tion					
Number	Shielded Type	Ferrite Core	Length	Note				
Cable 1	NO	NO	1.5M	Accessorise				



Page: 6 of 35

1.5 Description of Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned follow was evaluated respectively.

Test Items	Note
Conducted Emission	Charging Mode
Radiated Emission	Continuously transmitting
Bandwidth	Continuously transmitting
Duty Cycle	Continuously transmitting
Release Time	Normal Mode

Note:

- (1) During the testing procedure, the continuously transmitting mode was programmed by the customer.
- (2) The EUT is considered a portable unit, and it was pre-tested on the positioned of each 3 axis: X axis, Y axis and Z axis. The worst case was found positioned on Z-plane. There for only the test data of this Z-plane were used for radiated emission measurement test.

1.6 Description of Test Software Setting

During testing channel& Power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of transmitting mode.

RF Power Setting in Test SW:	DEF
------------------------------	-----



Page: 7 of 35

1.7 Measurement Uncertainty

The reported uncertainty of measurement y \pm U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

Test Item	Parameters	Expanded Uncertainty (U _{Lab})
	Level Accuracy:	
Conducted Emission	9kHz~150kHz	±3.42 dB
	150kHz to 30MHz	±3.42 dB
Dadiated Emission	Level Accuracy:	. 4 CO dD
Radiated Emission	9kHz to 30 MHz	±4.60 dB
Radiated Emission	Level Accuracy:	±4.40 dB
Radiated Emission	30MHz to 1000 MHz	±4.40 db
Padiated Emission	Level Accuracy:	.4.20 dB
Radiated Emission	Above 1000MHz	±4.20 dB

1.8 Test Facility

The testing report were performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at 1A/F., Bldg.6, Yusheng Industrial Zone, The National Road No.107 Xixiang Section 467, Xixiang, Bao'an, Shenzhen, Guangdong, China. At the time of testing, the following bodies accredited the Laboratory:

CNAS (L5813)

The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

FCC List No.: (811562)

The Laboratory is listed in the United States of American Federal Communications Commission (FCC), and the registration number is 811562.

IC Registration No.: (11950A-1)

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A-1.



8 of 35 Page:

2. Test Summary

FCC Part 15 Subpart (15.231(a))/ RSS 210 Issue 8: Annex 1					
Standard Section FCC IC		Took Itawa	I. d		
		Test Item Judgmen		nt Remark	
15.203		Antenna Requirement	PASS	N/A	
15.207	RSS-GEN 8.8	Conducted Emission	PASS	N/A	
15.231	D00 040	Release Time	PASS	N/A	
	RSS-210 — Annex 1	Radiation Emission	PASS	N/A	
		20 dB Bandwidth	PASS	N/A	
	8.9/8.10	Duty Cycle	PASS	N/A	



Page: 9 of 35

3. Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
EMI Test Receiver	Rohde & Schwarz	ESCI	100321	Jul. 22, 2016	Jul. 21, 2017
RF Switching Unit	Compliance Direction Systems Inc	RSU-A4	34403	Jul. 22, 2016	Jul. 21, 2017
AMN	SCHWARZBECK	NNBL 8226-2	8226-2/164	Jul. 22, 2016	Jul. 21, 2017
LISN	Rohde & Schwarz	ENV216	101131	Jul. 22, 2016	Jul. 21, 2017
Radiation	Emission Tes	t			
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Jul. 22, 2016	Jul. 21, 2017
EMI Test Receiver	Rohde & Schwarz	ESPI	100010/007	Jul. 22, 2016	Jul. 21, 2017
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Mar. 20, 2016	Mar. 19, 2017
Bilog Antenna	ETS-LINDGREN	3142E	00117542	Mar. 20, 2016	Mar. 19, 2017
Horn Antenna	ETS-LINDGREN	3117	00143207	Mar. 19, 2016	Mar. 18, 2017
Horn Antenna	ETS-LINDGREN	3117	00143209	Mar. 19, 2016	Mar. 18, 2017
Pre-amplifier	Sonoma	310N	185903	Mar. 20, 2016	Mar. 19, 2017
Pre-amplifier	HP	8449B	3008A00849	Mar. 26, 2016	Mar. 25, 2017
Cable	HUBER+SUHNER	100	SUCOFLEX	Mar. 26, 2016	Mar. 25, 2017
Positioning Controller	ETS-LINDGREN	2090	N/A	N/A	N/A
Antenna C	Conducted Em	ission			
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Jul. 22, 2016	Jul. 21, 2017
EMI Test Receiver	Rohde & Schwarz	ESCI	100010/007	Jul. 22, 2016	Jul. 21, 2017
Power Meter	Anritsu	ML2495A	25406005	Jul. 22, 2016	Jul. 21, 2017
Power Sensor	Anritsu	ML2411B	25406005	Jul. 22, 2016	Jul. 21, 2017



Page: 10 of 35

4. Conducted Emission Test

4.1 Test Standard and Limit

4.1.1Test Standard FCC 15.207/RSS Gen 8.8

4.1.2 Test Limit

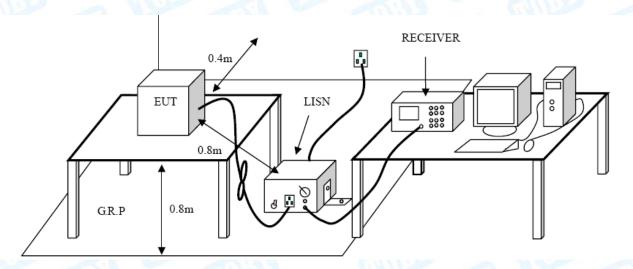
Conducted Emission Test Limit

	Maximum RF Lin	e Voltage (dBμV)
Frequency	Quasi-peak Level	Average Level
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
500kHz~5MHz	56	46
5MHz~30MHz	60	50

Notes:

- (1) *Decreasing linearly with logarithm of the frequency.
- (2) The lower limit shall apply at the transition frequencies.
- (3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2 Test Setup



4.3 Test Procedure

The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/50uH of coupling impedance for the measuring instrument.

Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.



Page: 11 of 35

I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

LISN at least 80 cm from nearest part of EUT chassis.

The bandwidth of EMI test receiver is set at 9kHz, and the test frequency band is from 0.15MHz to 30MHz.

4.4 Test Data

Please see the next page.





Page: 12 of 35

25 ℃ AC 120V/60Hz Line Charging Mode Only worse case	is reported	Relativ	e Humidity:	55%
Line Charging Mode	is reported	(IIII)		TO BY
Charging Mode	is reported	(MID)		MIN
	e is reported	WIII DE		MALL
Only worse case	is reported			
				QP: — AVG: —
×				
My M MX				\
wy / / www.	man who who was	MANAMAMAM	range of play property of the	
	and market	manyona	manner and the	pe.
				AV
0.5	(MH2)	5		30.000
0.3	[1112]	3		30.000
Reading	Correct	Measure-	Limit O	ver
				dB Detector
540 25.97	10.05	36.02	56.00 -19	
	10.05	30.90	46.00 -15	
5 4 0 20.65				
540 20.85 580 17.28	10.06	27.34	JO.UU -28	
580 17.28	10.06 10.06	27.34 19.42	56.00 -28 46.00 -26	
580 17.28 580 9.36	10.06	19.42	46.00 -26	.58 AVG
580 17.28 580 9.36 500 19.71	10.06 10.24	19.42 29.95	46.00 -26 60.00 -30	.58 AVG
580 17.28 580 9.36	10.06	19.42	46.00 -26	.58 AVG
1	req. Level dBuV 700 43.21 700 29.59 980 41.01 980 27.61 260 38.89 260 25.81	Reading Level Factor Hz dBuV dB 700 43.21 9.96 700 29.59 9.96 980 41.01 10.02 980 27.61 10.02 260 38.89 10.02	Reading Level Factor Measure- ment Hz dBuV dB dBuV 700 43.21 9.96 53.17 700 29.59 9.96 39.55 980 41.01 10.02 51.03 980 27.61 10.02 37.63 260 38.89 10.02 48.91 260 25.81 10.02 35.83	Reading Correct Measure- freq. Level Factor ment Limit O Hz dBuV dB dBuV dBuV o 700 43.21 9.96 53.17 64.96 -11 700 29.59 9.96 39.55 54.96 -15 980 41.01 10.02 51.03 63.69 -12 980 27.61 10.02 37.63 53.69 -16 260 38.89 10.02 48.91 62.59 -13 260 25.81 10.02 35.83 52.59 -16

Emission Level= Read Level+ Correct Factor





Page: 13 of 35

UT:	NATYA Model Name :			20005BLK		
emperature:	25 ℃	THU T	Relative	Humidi	ty: 5	5%
est Voltage:	AC 120V/60Hz	100	18	61	11/29	
Terminal:	Neutral	THUE		A W		
Test Mode:	Charging Mode	73	THE		0	INTE
Remark:	Only worse case	e is reported		CIN	33	
90.0 dBuV						
					QP: AVG:	_
					Avu.	
×						
A A A						
40 1	×					
	May June June J	س. ۸		ATTAYAN MAAAAAAA	X	
~ A A APV *	W WW	A HAVA JAMA LAWA JAWA	\sqrt{V}	A/HYMNUMAN UNIVERS	man	
, 00	My My	Λω				harana para per
	hw Th	/ ``^\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Mr. Marine	Annama	Water Comment	\
		· · · · · · · · · · · · · · · · · · ·	1 7 7 7 7 7			
						AV
-10						AV
-10 0.150	0.5	(MHz)	5			30.000
	0.5 Reading		5 Measure-			
0.150 No. Mk. F	Reading req. Level	g Correct Factor	Measure- ment	Limit	Over	30.000
0.150 No. Mk. F	Reading Freq. Level	g Correct Factor	Measure- ment	dBu∨	dB	30.000 Detector
0.150 No. Mk. F	Reading Freq. Level MHz dBuV 1660 43.38	g Correct Factor dB 10.12	Measure- ment dBuV 53.50	dBu∀ 65.15	dB -11.65	30.000 Detector QP
0.150 No. Mk. F 1 * 0.7 2 0.7	Reading Freq. Level MHz dBuV 1660 43.38	g Correct Factor dB 10.12 10.12	Measure- ment dBuV 53.50 38.47	dBuV 65.15 55.15	dB -11.65 -16.68	30.000 Detector QP AVG
0.150 No. Mk. F 1 * 0.7 2 0.7 3 0.7	Reading Level MHz dBuV 1660 43.38 1660 28.35 1940 41.12	g Correct Factor dB 10.12 10.12	Measure- ment dBuV 53.50 38.47 51.24	dBuV 65.15 55.15 63.86	dB -11.65 -16.68 -12.62	30.000 Detector QP AVG
0.150 No. Mk. F 1 * 0.7 2 0.7 3 0.7 4 0.7	Reading Level MHz dBuV 1660 43.38 1660 28.35 1940 41.12	g Correct Factor dB 10.12 10.12 10.12	Measure- ment dBuV 53.50 38.47 51.24 36.26	dBuV 65.15 55.15 63.86 53.86	dB -11.65 -16.68 -12.62 -17.60	30.000 Detector QP AVG QP AVG
0.150 No. Mk. F 1 * 0.7 2 0.7 3 0.7 4 0.7 5 0.2	Reading Level MHz dBuV 1660 43.38 1660 28.35 1940 41.12 1940 26.14 2220 38.71	g Correct Factor dB 10.12 10.12 10.12 10.12 10.12 10.11	Measure- ment dBuV 53.50 38.47 51.24 36.26 48.82	dBuV 65.15 55.15 63.86 53.86 62.74	dB -11.65 -16.68 -12.62 -17.60 -13.92	30.000 Detector QP AVG QP AVG
0.150 No. Mk. F 1 * 0.7 2 0.7 3 0.7 4 0.7 5 0.2 6 0.2	Reading Level MHz dBuV 1660 43.38 1660 28.35 1940 41.12 1940 26.14 2220 38.71 2220 23.80	g Correct Factor dB 10.12 10.12 10.12 10.12 10.11 10.11	Measure- ment dBuV 53.50 38.47 51.24 36.26 48.82 33.91	dBuV 65.15 55.15 63.86 53.86 62.74 52.74	dB -11.65 -16.68 -12.62 -17.60 -13.92 -18.83	Joseph Jo
0.150 No. Mk. F 1 * 0.7 2 0.7 3 0.7 4 0.7 5 0.2 6 0.2 7 0.5	Reading Level MHz dBuV 1660 43.38 1660 28.35 1940 41.12 1940 26.14 2220 38.71 2220 23.80 5620 28.52	g Correct Factor dB 10.12 10.12 10.12 10.12 10.11 10.11 10.02	Measure- ment dBuV 53.50 38.47 51.24 36.26 48.82 33.91 38.54	dBuV 65.15 55.15 63.86 53.86 62.74 52.74 56.00	dB -11.65 -16.68 -12.62 -17.60 -13.92 -18.83 -17.46	30.000 Detector QP AVG QP AVG QP AVG
0.150 No. Mk. F 1 * 0.7 2 0.7 3 0.7 4 0.7 5 0.2 6 0.2 7 0.8 8 0.8	Reading Level MHz dBuV 1660 43.38 1660 28.35 1940 41.12 1940 26.14 2220 38.71 2220 23.80 5620 28.52 5620 18.17	g Correct Factor dB 10.12 10.12 10.12 10.12 10.11 10.11 10.02 10.02	Measure- ment dBuV 53.50 38.47 51.24 36.26 48.82 33.91 38.54 28.19	dBuV 65.15 55.15 63.86 53.86 62.74 52.74 56.00 46.00	dB -11.65 -16.68 -12.62 -17.60 -13.92 -18.83 -17.46 -17.81	Joseph Jo
0.150 No. Mk. F 1 * 0.7 2 0.7 3 0.7 4 0.7 5 0.2 6 0.2 7 0.8 8 0.8	Reading Level MHz dBuV 1660 43.38 1660 28.35 1940 41.12 1940 26.14 2220 38.71 2220 23.80 5620 28.52	g Correct Factor dB 10.12 10.12 10.12 10.12 10.11 10.11 10.02 10.02	Measure- ment dBuV 53.50 38.47 51.24 36.26 48.82 33.91 38.54 28.19 26.41	dBuV 65.15 55.15 63.86 53.86 62.74 52.74 56.00 46.00	dB -11.65 -16.68 -12.62 -17.60 -13.92 -18.83 -17.46	30.000 Detector QP AVG QP AVG QP AVG
0.150 No. Mk. F 1 * 0.7 2 0.7 3 0.7 4 0.7 5 0.2 6 0.2 7 0.8 9 6.3	Reading Level MHz dBuV 1660 43.38 1660 28.35 1940 41.12 1940 26.14 2220 38.71 2220 23.80 5620 28.52 5620 18.17	g Correct Factor dB 10.12 10.12 10.12 10.12 10.11 10.11 10.02 10.02 10.06	Measure- ment dBuV 53.50 38.47 51.24 36.26 48.82 33.91 38.54 28.19	dBuV 65.15 55.15 63.86 53.86 62.74 52.74 56.00 46.00 60.00	dB -11.65 -16.68 -12.62 -17.60 -13.92 -18.83 -17.46 -17.81	Joseph Jo
0.150 No. Mk. F 1 * 0.7 2 0.7 3 0.7 4 0.7 5 0.2 6 0.2 7 0.8 9 6.3 10 6.3	Reading Level MHz dBuV 1660 43.38 1660 28.35 1940 41.12 1940 26.14 2220 38.71 2220 23.80 5620 28.52 5620 18.17	g Correct Factor dB 10.12 10.12 10.12 10.12 10.11 10.11 10.02 10.02 10.06 10.06	Measure- ment dBuV 53.50 38.47 51.24 36.26 48.82 33.91 38.54 28.19 26.41	dBuV 65.15 55.15 63.86 53.86 62.74 56.00 46.00 60.00 50.00	dB -11.65 -16.68 -12.62 -17.60 -13.92 -18.83 -17.46 -17.81 -33.59	Joseph Jo





Page: 14 of 35

EUT:	NATYA			Model Na	me :	2000	05BLK	
emperature:	25 ℃	Call	7	Relative I	Humidity	y : 55%		
est Voltage:	AC 240	V/60Hz			(AU)	113.9		
erminal:	Line		diffe		10		MAN!	
Test Mode:	Chargin	ng Mode		MILES		2 1	A Like	
Remark:	Only wo	orse case is	reported	6		13		
90.0 dBuV								
						QP: AVG:	_	
						riva.		
X								
40 7 7 7	nitrana A					,		
1 1 1 1 1	The state of the s	4444	WANTED THE WANTE	Mark and Mark and Mark	A M. Market Care	- Company		
	W/	1 morning			A. M. 41	\h		
W A .	γ.		$\bigvee\bigvee$	$\wedge \wedge \wedge \wedge \wedge \wedge$	against the same	was free free free free free free free fre	peal	
		Peak	,			- James		
						4	‴ MAVG	
						•	AVG	
							AVG	
0.150	0.5		(MHz)	5			30.000	
0.150		Reading	Correct	Measure-	Limit	Over		
	Freq.	Level	Correct Factor	Measure- ment	Limit	Over	30.000	
0.150 No. Mk.	Freq.	Level dBu∨	Correct Factor	Measure- ment	dBu∀	dB	30.000	
0.150 No. Mk.	Freq. MHz .1580	dBuV 38.78	Correct Factor dB 9.94	Measure- ment dBuV 48.72	dBu√ 65.56	dB -16.84	30.000 Detector	
No. Mk.	Freq. MHz .1580	dBuV 38.78 22.57	Correct Factor dB 9.94 9.94	Measurement dBuV 48.72 32.51	dBuV 65.56 55.56	dB -16.84 -23.05	30.000 Detecto	
0.150 No. Mk. 1 0 2 0 3 0	Freq. MHz .1580 .1580	dBuV 38.78 22.57 29.89	Correct Factor dB 9.94 9.94 10.05	Measure- ment dBuV 48.72 32.51 39.94	dBuV 65.56 55.56 56.00	dB -16.84 -23.05 -16.06	Detecto QP AVC	
0.150 No. Mk. 1 0 2 0 3 0 4 * 0	Freq. MHz .1580 .1580 .5660	dBuV 38.78 22.57 29.89 24.34	Correct Factor dB 9.94 9.94 10.05	Measure- ment dBuV 48.72 32.51 39.94 34.39	dBuV 65.56 55.56 56.00 46.00	dB -16.84 -23.05 -16.06 -11.61	Detecto QP AVC	
0.150 No. Mk. 1 0 2 0 3 0 4 * 0 5 1	Freq. MHz .1580 .1580 .5660 .5660	dBuV 38.78 22.57 29.89 24.34 21.86	Correct Factor dB 9.94 9.94 10.05 10.05	Measure- ment dBuV 48.72 32.51 39.94 34.39 31.92	dBuV 65.56 55.56 56.00 46.00 56.00	dB -16.84 -23.05 -16.06 -11.61 -24.08	Detector QP AVC QP AVC	
0.150 No. Mk. 1 0 2 0 3 0 4 * 0 5 1 6 1	Freq. MHz .1580 .1580 .5660 .5660 .0580	dBuV 38.78 22.57 29.89 24.34 21.86 16.43	Correct Factor dB 9.94 9.94 10.05 10.05 10.06	Measure- ment dBuV 48.72 32.51 39.94 34.39 31.92 26.49	dBuV 65.56 55.56 56.00 46.00 46.00	dB -16.84 -23.05 -16.06 -11.61 -24.08 -19.51	Detector QP AVC QP AVC	
0.150 No. Mk. 1 0 2 0 3 0 4 * 0 5 1 6 1	Freq. MHz .1580 .1580 .5660 .5660	dBuV 38.78 22.57 29.89 24.34 21.86	Correct Factor dB 9.94 9.94 10.05 10.05	Measure- ment dBuV 48.72 32.51 39.94 34.39 31.92	dBuV 65.56 55.56 56.00 46.00 46.00	dB -16.84 -23.05 -16.06 -11.61 -24.08	Detector QP AVC QP AVC	
0.150 No. Mk. 1 0 2 0 3 0 4 * 0 5 1 6 1 7 1	Freq. MHz .1580 .1580 .5660 .5660 .0580	dBuV 38.78 22.57 29.89 24.34 21.86 16.43	Correct Factor dB 9.94 9.94 10.05 10.05 10.06	Measure- ment dBuV 48.72 32.51 39.94 34.39 31.92 26.49	dBuV 65.56 55.56 56.00 46.00 46.00 56.00	dB -16.84 -23.05 -16.06 -11.61 -24.08 -19.51	Detector QP AVC QP AVC	
0.150 No. Mk. 1 0 2 0 3 0 4 * 0 5 1 6 1 7 1 8 1	Freq. MHz .1580 .1580 .5660 .5660 .0580 .0580	22.57 29.89 24.34 21.86 16.43 20.84	Correct Factor dB 9.94 9.94 10.05 10.05 10.06 10.06	Measure- ment dBuV 48.72 32.51 39.94 34.39 31.92 26.49 30.90	dBuV 65.56 55.56 56.00 46.00 56.00 46.00 46.00	dB -16.84 -23.05 -16.06 -11.61 -24.08 -19.51 -25.10	Detecto QP AVC QP AVC QP AVC	
0.150 No. Mk. 1 0 2 0 3 0 4 * 0 5 1 6 1 7 1 8 1 9 2	Freq. MHz .1580 .1580 .5660 .5660 .0580 .0580 .9060	Level dBuV 38.78 22.57 29.89 24.34 21.86 16.43 20.84 15.34	Correct Factor dB 9.94 9.94 10.05 10.06 10.06 10.06	Measure-ment dBuV 48.72 32.51 39.94 34.39 31.92 26.49 30.90 25.40	dBuV 65.56 55.56 56.00 46.00 46.00 56.00 46.00 56.00	dB -16.84 -23.05 -16.06 -11.61 -24.08 -19.51 -25.10 -20.60	Detector QP AVC QP AVC QP AVC	
0.150 No. Mk. 1 0 2 0 3 0 4 * 0 5 1 6 1 7 1 8 1 9 2 10 2	Freq. MHz .1580 .1580 .5660 .5660 .0580 .0580 .9060 .9060	Level dBuV 38.78 22.57 29.89 24.34 21.86 16.43 20.84 15.34 20.21	Correct Factor dB 9.94 9.94 10.05 10.06 10.06 10.06 10.06 10.06	Measure- ment dBuV 48.72 32.51 39.94 34.39 31.92 26.49 30.90 25.40 30.25	dBuV 65.56 55.56 56.00 46.00 56.00 46.00 56.00 46.00	dB -16.84 -23.05 -16.06 -11.61 -24.08 -19.51 -25.10 -20.60 -25.75	Detector QP AVC QP AVC QP AVC	

Emission Level= Read Level+ Correct Factor





Page: 15 of 35

EUT:	NATYA			Model Na	me :	2000	05BLK
Temperature:	25 ℃	CITIES !		Relative I	Humidity	: 55%	
Гest Voltage:	AC 240V	//60Hz	100		TUE	13.9	
Terminal:	Neutral		LINE.		62		
Test Mode:	Charging	Mode		MILE		5 N	N. Jane
Remark:	Only wor	se case is i	reported	1	1011		
90.0 dBuV							
						QP: AVG:	
X							
40	mora A	V				×	
	"Ly \nhan	hally depart malliter appro-	44444 M/4444	myther as a work	المنافظ المساومة المنافعة	ALL AND	
ANAMA.	uma A		'	Lac.sah/Mod*R			
IV A C 2013 C 13 180 Ac	//////////////////////////////////////	And the state of t	Mary Mary	M . M	الرسانيساويسوياس بالعلا	many white	"Northwayer and
M h h h h	W W	יארווי ויייקגו	1 4 7 4				
W V V V	JAN JOHN	Contraction 1 Mark	w V	l Alman		Juny	
A A A A A A	Year house	Capping 1 HAV	WA V			hung	
10	' New Anti-		way V V			harry	AVE
0.150	0.5		(MHz)	5		Juney	
						Juney	AVE
0.150	F	Reading		Measure- ment	Limit	Over	AVE
0.150		_	Correct	Measure-	Limit	Over	AVE
0.150 No. Mk.	Freq.	Level	Correct Factor	Measure- ment		dB	30.000
0.150 No. Mk.	Freq. MHz	Level dBuV	Correct Factor	Measure- ment	dBuV 65.56	dB	30.000 Detector
0.150 No. Mk. 1 0. 2 0.	Freq. MHz	dBuV 38.46	Correct Factor dB	Measure- ment dBuV 48.58	dBuV 65.56	dB -16.98 -25.26	30.000 Detector
0.150 No. Mk. 1 0. 2 0. 3 0.	Freq. MHz .1580	dBuV 38.46 20.18	Correct Factor dB 10.12 10.12	Measure- ment dBuV 48.58 30.30	dBuV 65.56 55.56	dB -16.98 -25.26 -18.43	30.000 Detector QP
0.150 No. Mk. 1 0. 2 0. 3 0. 4 0.	Freq. MHz .1580 .1580	dBuV 38.46 20.18 34.20	Correct Factor dB 10.12 10.12	Measure- ment dBuV 48.58 30.30 44.31	dBuV 65.56 55.56 62.74	dB -16.98 -25.26 -18.43 -25.74	30.000 Detector QP AVG
0.150 No. Mk. 1 0. 2 0. 3 0. 4 0. 5 * 0.	Freq. MHz 1580 1580 2220	dBuV 38.46 20.18 34.20 16.89	Correct Factor dB 10.12 10.12 10.11 10.11	Measure- ment dBuV 48.58 30.30 44.31 27.00	dBuV 65.56 55.56 62.74 52.74	dB -16.98 -25.26 -18.43 -25.74 -16.64	30.000 Detector QP AVG
0.150 No. Mk. 1 0. 2 0. 3 0. 4 0. 5 * 0. 6 0.	Freq. MHz .1580 .1580 .2220 .2220	dBuV 38.46 20.18 34.20 16.89 29.34	Correct Factor dB 10.12 10.12 10.11 10.11	Measure- ment dBuV 48.58 30.30 44.31 27.00 39.36	dBuV 65.56 55.56 62.74 52.74 56.00	dB -16.98 -25.26 -18.43 -25.74 -16.64 -18.88	30.000 Detector QP AVG QP AVG
0.150 No. Mk. 1 0. 2 0. 3 0. 4 0. 5 * 0. 6 0. 7 1.	Freq. MHz .1580 .1580 .2220 .2220 .5740	Level dBuV 38.46 20.18 34.20 16.89 29.34 17.10	Correct Factor dB 10.12 10.12 10.11 10.11 10.02 10.02	Measure- ment dBuV 48.58 30.30 44.31 27.00 39.36 27.12	dBuV 65.56 55.56 62.74 52.74 56.00 46.00	dB -16.98 -25.26 -18.43 -25.74 -16.64 -18.88 -22.84	30.000 Detector QP AVG
0.150 No. Mk. 1 0. 2 0. 3 0. 4 0. 5 * 0. 6 0. 7 1. 8 1.	Freq. MHz 1580 1580 2220 2220 5740 1180	dBuV 38.46 20.18 34.20 16.89 29.34 17.10 23.01	Correct Factor dB 10.12 10.12 10.11 10.11 10.02 10.02 10.15	Measure- ment dBuV 48.58 30.30 44.31 27.00 39.36 27.12 33.16	dBuV 65.56 55.56 62.74 52.74 56.00 46.00	dB -16.98 -25.26 -18.43 -25.74 -16.64 -18.88 -22.84 -25.72	Detector QP AVG QP AVG QP AVG
0.150 No. Mk. 1	Freq. MHz .1580 .1580 .2220 .2220 .5740 .5740 .1180	Level dBuV 38.46 20.18 34.20 16.89 29.34 17.10 23.01 10.13	Correct Factor dB 10.12 10.12 10.11 10.11 10.02 10.02 10.15 10.15	Measure- ment dBuV 48.58 30.30 44.31 27.00 39.36 27.12 33.16 20.28	dBuV 65.56 55.56 62.74 52.74 56.00 46.00 46.00	dB -16.98 -25.26 -18.43 -25.74 -16.64 -18.88 -22.84 -25.72 -27.04	Detector QP AVG QP AVG QP AVG QP AVG
No. Mk. 1 0. 2 0. 3 0. 4 0. 5 * 0. 6 0. 7 1. 8 1. 9 2. 10 2.	Freq. MHz .1580 .1580 .2220 .2220 .5740 .1180 .1180 .0180	Level dBuV 38.46 20.18 34.20 16.89 29.34 17.10 23.01 10.13 18.90	Correct Factor dB 10.12 10.12 10.11 10.02 10.02 10.05 10.15 10.06	Measure- ment dBuV 48.58 30.30 44.31 27.00 39.36 27.12 33.16 20.28 28.96	dBuV 65.56 55.56 62.74 52.74 56.00 46.00 56.00	dB -16.98 -25.26 -18.43 -25.74 -16.64 -18.88 -22.84 -25.72 -27.04 -27.57	30.000 Detector QP AVG QP AVG

Emission Level= Read Level+ Correct Factor



Page: 16 of 35

5. Radiated Emission Test

5.1 Test Standard and Limit

5.1.1 Test Standard FCC 15.231/RSS 210 Annex 1

5.1.2 Test Limit

According to RSS 210 A1.1 Table A requirement:

In addition to the provisions of RSS Gen 8.9 and 8.10, the field strength of emissions from intentional radiators operated under this Section shall not exceed the following:

Fundamental Frequency (MHz)	Field Strength of Fundamental (microvolt/meter) at 3m	Field Strength of Spurious Emissions (microvolt/meter) at 3m		
40.66~40.70	2250	225		
70~130	1250	125		
130~174	1250 to 3750(**)	125 to 375(**)		
174~260	3750	375		
260~470	3750 to 12500(**)	375 to 1250(**)		
Above 470	12500	1250		

^{**} Linear interpolations, the formulas for calculating the maximum permitted fundamental field strengths are as follows:

- (1) for the band 130~174 MHz, uV/m at 3 meters= 56.81818(F)-6136.3636;
- (2) for the band 260~470 MHz, uV/m at 3 meter= 41.6667(F)-7083.3333.
- (3) The maximum permitted unwanted emissions level is 20 dB below the maximum permitted fundamental level. In addition field strength of any emissions which appear inside of the restriction band shall not exceed the general radiated emissions limits in RSS Gen 8.9.

Frequency (MHz)	Field Strength (microvolt/meter)	Measurement Distance (meters)		
0.009~0.490	2400/F(KHz)	300		
0.490~1.705	2400/F(KHz)	30		
1.705~30.0	30	30		
30~88	100	3		
88~216	150	3		



17 of 35

Page:

216~960	200	3
Above 960	500	3

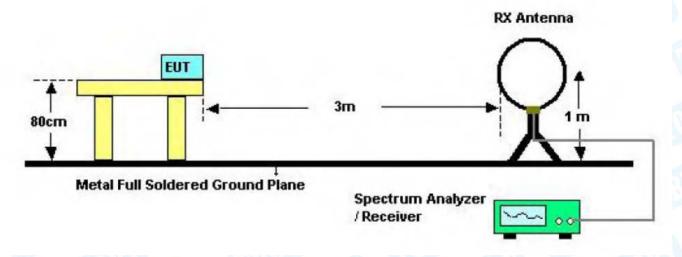
Note:

- (1) The tighter limit applies at the band edges.
- (2) Emission Level(dBuV/m)=20log Emission Level(uV/m)

So the field strength of emission limits have been calculated in below table.

Fundamental Frequency (MHz)	Field Strength of Fundamental (microvolt/meter) at 3m			
433.92 MHz	80.82 (Average)			
433.92 MHz	100.82 (Peak)			

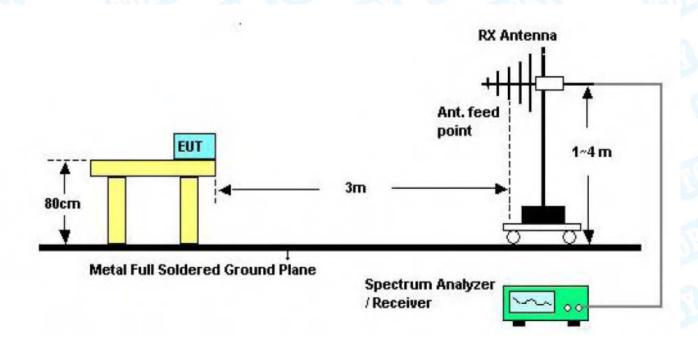
5.2 Test Setup



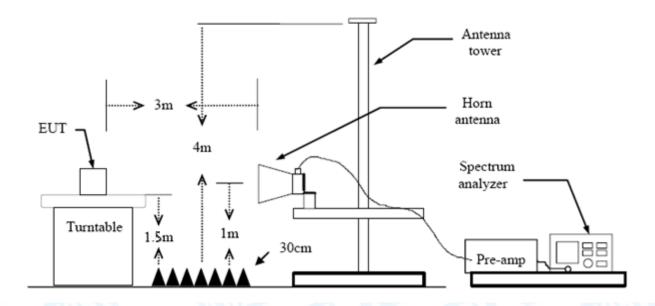
Bellow 30MHz Test Setup



Page: 18 of 35



Bellow 1000MHz Test Setup



Above 1GHz Test Setup

5.3 Test Procedure

- (1) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz. The EUT was placed on a rotating 0.8m high above the ground, the table was rotated 360 degrees to determine the position of the highest radiation.
- (2) Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by



Page: 19 of 35

3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.

- (3) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.
- (4) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- (5) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Bellow 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.
- (6) Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.
- (7) Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.
- (8) For the actual test configuration, please see the test setup photo.

5.4 EUT Operating Condition

The Equipment Under Test was set to Continual Transmitting in maximum power.

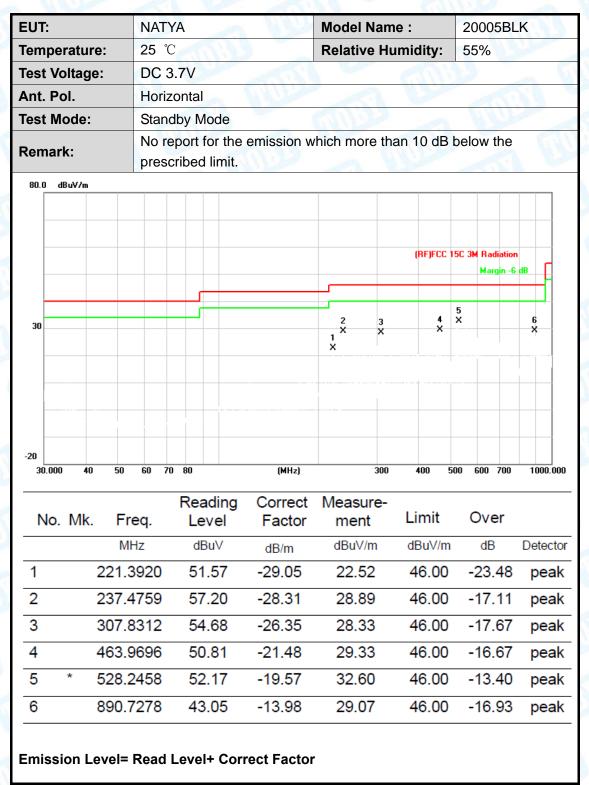




Page: 20 of 35

5.5 Test Data

Fundamental and Harmonics emissions







Page: 21 of 35

EUT	:			NA	٩T١	ΥA	9		(n)	Mod	el N	am	e :		2	20005BLK				
Tem	pera	ature	:	25	°(A.	A V	Relative Humidity:				5	55%					
Test	t Vol	tage		D	23	3.7∖		1///		1	1/7					T		Ų		
Ant.	Pol			Ve	ertic	cal	V			30		_	W 1	10		عالم			a	
Test	t Mo	de:		St	and	dby	Мо	de	100		6						60	M	Ŋ,	
Ren	nark:				No report for the emission which more than 10 dB below the prescribed limit.															
80.0) dBu	V/m															_			
													(F	(F)FC	150		adiatio		4	
																M	argin -	6 08	H	
							_								5 X	6				
30											4				^	X				
									2 X	3 X	×									
								1 X	×	_ ^					_		_			
-20																				
30	.000	40	50	60	70	80			(MHz)		;	300	4	00	500	600	700	1	000.0)0(
1	No.	Mk.	F	req.			eac Lev	ding el	Correct Factor	Mea m	asur ent	e-	Lir	nit		Ov	er			
			N	ИНZ			dBu	ıV	dB/m	dB	uV/m	1	dB	uV/ı	n	dl	В	De	etec	to
1			106.	385	0	4	42.3	34	-31.85	10	0.49		43	3.50)	-33	3.01	ŗ	ea	ık
2			165.	486	6	4	45.9	96	-30.63	15	5.33		43	3.50)	-28	3.17	F	ea	ık
3			236.	644	7	-	44.	53	-28.34	16	3.19		46	3.00)	-29	.81	ŗ	ea	ık
4			279.	.043	6	4	48.3	31	-27.06	2′	1.25		46	6.00)	-24	.75	ŗ	ea	ık
5	7	k	530.	101	4	,	52.	78	-19.57	33	3.21		46	3.00)	-12	.79	ŗ	ea	ık
6		,	590.	973	7	,	50.3	35	-18.98	31	1.37		46	3.00)	-14	.63	ŗ	ea	ık
— Emi	ssio	n Le	vel=	Rea	ad	Lev	el+	Cor	rect Facto	r										

Note:

- (1) All Readings are Peak Value.
- (2) Emission Level= Reading Level+ Probe Factor +Cable Loss
- (3) The QP measurement was not performed when the peak measured data under the limit of QP detection.



Page: 22 of 35

Fundamental and Harmonics emissions

Below 1G

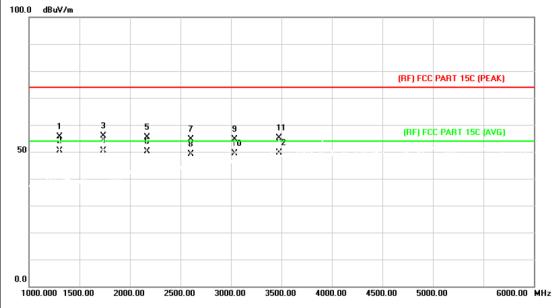
EUT:		N	ATYA	MILL	Model Na	me :	20005B	LK
Temperature:		25	5 ℃	C.	Relative I	Humidity:	55%	
Test Voltage:		D	C 3.7V	-0	A Brown		1	1100
Test Mode:		T	K Mode	UU P		OH.		1 0
Remark:							OUT:	
Freq.	Ant.P			ion Level uV/m)		t 3m ıV/m)	Marg	jin(dB)
(MHz)	H/V		PK	AV	PK	AV	PK	AV
434.0650	Н		72.62	67.20	100.82	80.82	-28.20	-13.62
869.1301	Н		48.82	43.40	80.82	60.82	-32.00	-17.42
434.0650	V		79.40	73.98	100.82	80.82	-21.42	-6.84
869.1301	V		49.05	43.63	80.82	60.82	-31.77	-17.19
Average Value	e=Peal	(Va	alue-5.42					
Margin=Emis	sion Le	eve	l-Limit					



Page: 23 of 35

Above 1G

EUT:	NATYA	Model Name :	20005BLK					
Temperature:	25 ℃	Relative Humidity:	55%					
Test Voltage:	DC 3.7V	NO TO THE	1133					
Ant. Pol.	Horizontal							
Test Mode:	TX Mode	WILD S	a live					
Remark:	No report for the emission was prescribed limit.	which more than 10 dB	below the					
100.0 dBuV/m								



No.	Mk. Fr	Read eq. Lev	•		Limit	Over	
	MI	Hz dBu	V dB/m	dBuV/m	dBuV/m	dB	Detector
1	1301	.332 61.1	-5.35	55.75	74.00	-18.25	peak
2	1301	.332 55.6	88 -5.35	50.33	54.00	-3.67	AVG
3	1736	.483 59.0)1 -3.13	55.88	74.00	-18.12	peak
4	* 1736	.483 53.5	59 -3.13	50.46	54.00	-3.54	AVG
5	2168	.510 55.6	61 -0.16	55.45	74.00	-18.55	peak
6	2168	.510 50.1	19 -0.16	50.03	54.00	-3.97	AVG
7	2603	.351 52.8	33 1.84	54.67	74.00	-19.33	peak
8	2603	.351 47.4	1.84	49.25	54.00	-4.75	AVG
9	3037	.063 50.3	33 4.36	54.69	74.00	-19.31	peak
10	3037	.063 44.9	91 4.36	49.27	54.00	-4.73	AVG
11	3473	.883 48.5	6.64	55.17	74.00	-18.83	peak
12	3473	.883 43.1	11 6.64	49.75	54.00	-4.25	AVG

Emission Level= Read Level+ Correct Factor

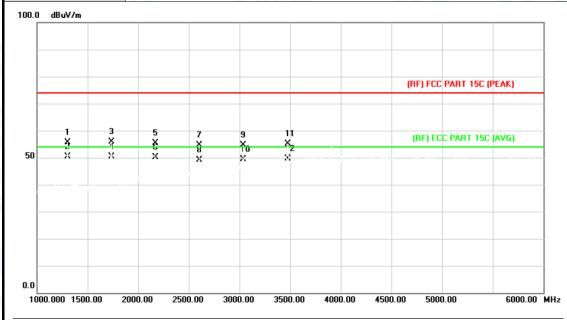
Average Value=Peak Value-5.42



Report No.: TB-FCC149270 24 of 35

Page:

NATYA 20005BLK EUT: **Model Name:** 25 ℃ Temperature: **Relative Humidity:** 55% Test Voltage: DC 3.7V Ant. Pol. Vertical **Test Mode:** TX Mode No report for the emission which more than 10 dB below the Remark: prescribed limit.



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1		1301.332	61.10	-5.35	55.75	74.00	-18.25	peak
2		1301.332	55.68	-5.35	50.33	54.00	-3.67	AVG
3		1736.483	59.01	-3.13	55.88	74.00	-18.12	peak
4	*	1736.483	53.59	-3.13	50.46	54.00	-3.54	AVG
5		2168.510	55.61	-0.16	55.45	74.00	-18.55	peak
6		2168.510	50.19	-0.16	50.03	54.00	-3.97	AVG
7		2603.351	52.83	1.84	54.67	74.00	-19.33	peak
8		2603.351	47.41	1.84	49.25	54.00	-4.75	AVG
9		3037.063	50.33	4.36	54.69	74.00	-19.31	peak
10		3037.063	44.91	4.36	49.27	54.00	-4.73	AVG
11		3473.883	48.53	6.64	55.17	74.00	-18.83	peak
12		3473.883	43.11	6.64	49.75	54.00	-4.25	AVG

Emission Level= Read Level+ Correct Factor

Average Value=Peak Value-5.42



Page: 25 of 35

Other harmonics emissions are lower than 20dB below the allowable limit.

Note:

(1) All Readings are Peak Value and AV. And AV is calculated by the following: Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.

Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values.

Average Values=Peak Values+20log (Duty Cycle)

- (2) Emission Level= Reading Level + Probe Factor +Cable Loss
- (3) Data of measurement within this frequency range shown " -- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Pulse Desensitization Correction Factor

Note:

(1) The Smallest Pulse Width (PW)= 0.56ms

(2) 2/PW=2/0.56 (ms)= 3.571 kHz<100 kHz

Because 2/PW<RBW, so the PDCF is not needed.



Page: 26 of 35

6. Bandwidth

6.1 Test Standard and Limit

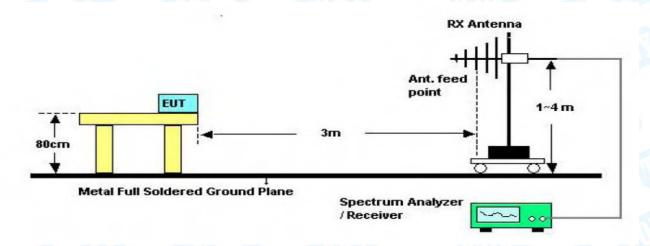
6.1.1 Test Standard FCC 15.231/RSS 210 Annex 1

6.1.2 Test Limit

The 99%bandwidth of the emissions shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. So the emission bandwidth limits have been calculated in below table.

Fundamental Frequency	20 dB Bandwidth Limits (MHz)
433.92 MHz	1.0847

6.2 Test Setup



6.3 Test Procedure

- (1) Set Spectrum Analyzer Center Frequency= Fundamental Frequency, RBW=10 kHz, VBW= 30 kHz, Span= 1 MHz.
- (2) Measured the spectrum width with power higher than 20 dB below carrier.

6.4 EUT Operating Condition

The Equipment Under Test was Programmed to be in continuously transmitting mode.

6.5 Test Condition

Temperature		25 ℃
Relative Humidity	July 1	65 %
Pressure		1010 hPa
Test Power	3	DC 3.7V

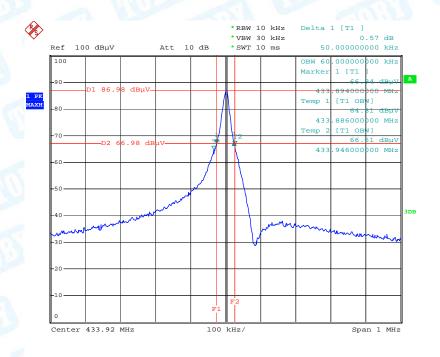




Page: 27 of 35

6.6 Test Data

Frequency (MHz)	20 dBc Bandwidth (kHz)	99% OBW (kHz)	Result
433.92	50.00	60.00	PASS



Date: 21.SEP.2016 09:36:54



Page: 28 of 35

7. Release Time Measurement

7.1 Test Standard and Limit

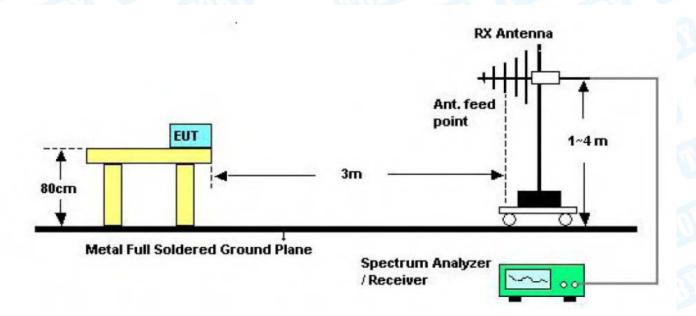
7.1.1 Test Standard

FCC 15.231/RSS 210 Annex 1

7.1.2 Test Limit

According to RSS 210 Annex 1 A1.1.1, A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

7.2 Test Setup



7.3 Test Procedure

- (1) Setup the EUT as show in the block diagram above.
- (2) Set Spectrum Analyzer Centre Frequency= Fundamental Frequency, RBW=100 kHz, VBW= 300 kHz, Span= 0 Hz. Sweep Time= 5 Seconds.
- (3) Setup the EUT as normal operation and press Transmitter button.
- (4) Set Spectrum Analyzer View, Delta Mark time.

7.4 EUT Operating Condition

The EUT was set to work in transmitting mode.



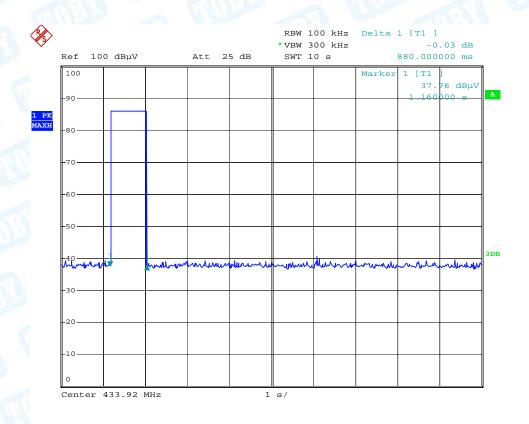
Page: 29 of 35

7.5 Test Condition

Temperature	(4) (1) (1) (1)	25 ℃
Relative Humidity		65 %
Pressure	1:	1010 hPa
Test Power		DC 3.7V

7.6 Test Data

Release Time (s)	Limit (s)	Result
0.88	5	PASS



Date: 21.SEP.2016 09:35:58



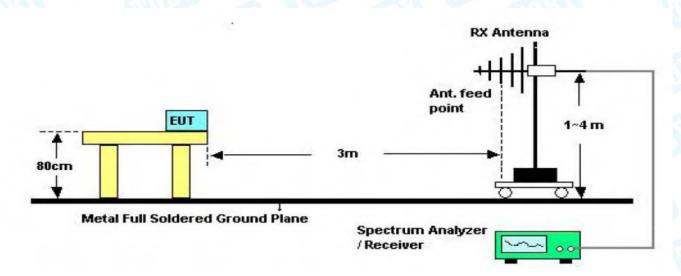
Page: 30 of 35

8. Duty Cycle

8.1 Test Standard and Limit

5.1.1 Test Standard FCC 15.231/RSS 210 Annex 1

8.2 Test Setup



8.3 Test Procedure

- (1) The EUT was placed on a turntable which is 0.8m above ground plane.
- (2) Set EUT operating in continuous transmitting mode.
- (3) Set the Spectrum Analyzer to the transmitter carrier frequency, and set the spectrum analyzer resolution bandwidth (RBW) to 100 kHz and video bandwidth (VBW) to 300 kHz, Span was set to 0 Hz.
- (4) The Duty Cycle was measured and recorded.

8.4 EUT Operating Condition

The EUT was programmed to be in transmitting mode.

8.5 Test Condition

Temperature		25 ℃
Relative Humidity	1753	65 %
Pressure		1010 hPa
Test Power		DC 3.7V





8.6 Test Data

Please refer the following pages:

Plot 1/Plot 2: transmit once in 100ms, and each cycle is 74.6 ms there are three kinds of pulse in each cycle, the large pulses total 1, the middle pulses total 23, the small pulses total 25.

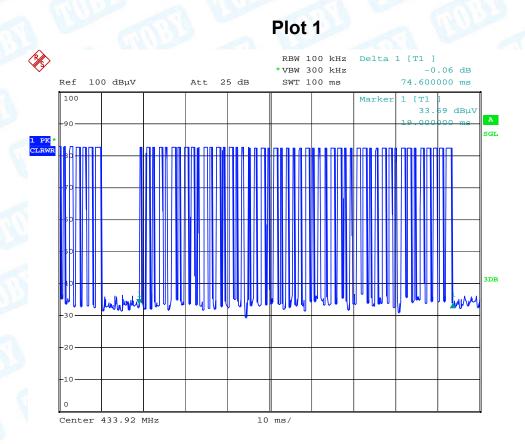
Plot 3: one large pulse in a time period of 1.58 ms

Plot 4: one middle pulse in a time period of 1.06 ms

Plot 5: one small pulse in a time period of 0.56 ms.

Duty Cycle=ON/Total=(1*1.58+23*1.06+25*0.56)/74.6=39.96/74.6=53.57% 20 log(Duty Cycle)=-5.42

Average=Peak Value+ 20log(Duty Cycle), AV=PK-5.42

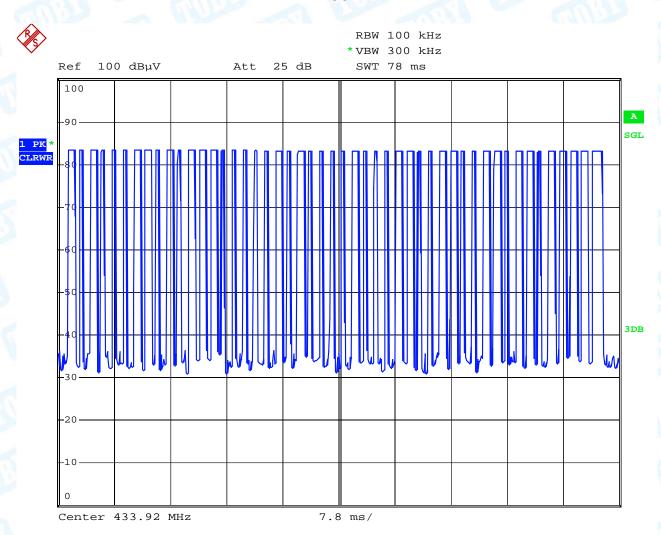


Date: 21.SEP.2016 09:30:47



Page: 32 of 35

Plot 2



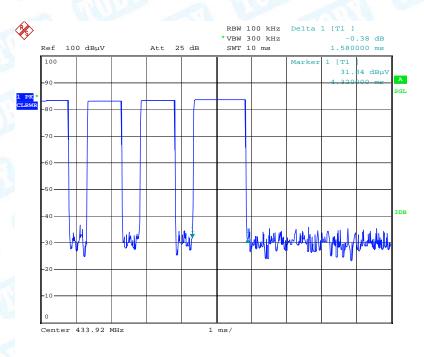
Date: 21.SEP.2016 09:32:04





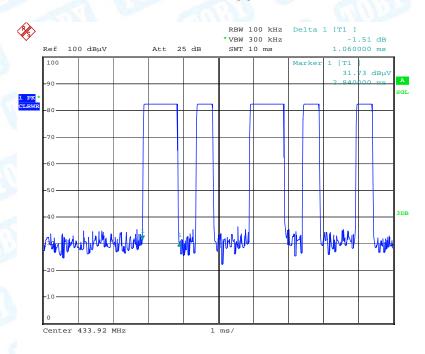
Page: 33 of 35

Plot 3



Date: 21.SEP.2016 09:34:41

Plot 4



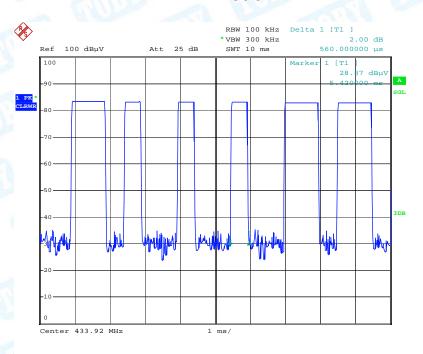
Date: 21.SEP.2016 09:33:06





Page: 34 of 35

Plot 5



Date: 21.SEP.2016 09:33:48



Page: 35 of 35

9. Antenna Requirement

9.1 Standard Requirement

9.1.1 Standard FCC Part 15.203

9.1.2 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 shall be considered sufficient to comply with the provisions of this Section. 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.

9.2 Antenna Connected Construction

The directional gains of the antenna used for transmitting is 0 dBi, and the antenna connector is de-signed with permanent attachment and no consideration of replacement. Please see the EUT photo for details.

Result

The EUT antenna is an Integral Antenna. It complies with the standard requirement.

	Antenna Type	
Olives .	▼ Permanent attached antenna	
B m	□ Unique connector antenna	
mn3	□ Professional installation antenna	