

Radio Test Report

FCC ID: VGWHEI-23Y-1

This report concerns (check one) : 🖂 Original Grant 🗌 Class II Change

Chiba-ken, 270-0222 Japan

Issued Date	: Sep. 10, 2012
Project No.	: 1207019
Equipment	: TOUR de GUIDE
Model Name	: HEI-23Y-L
Applicant	: BANKEN CO., LTD
Address	: 1842-10 Kimagase, Noda-shi,

Tested by: Neutron Engineering Inc. EMC Laboratory **Date of Receipt:** Aug. 15, 2012 **Date of Test:** Aug. 15, 2012 ~ Aug. 31, 2012

Testing Engineer: Rush kao
(Rush Kao)
Technical Manager:
(Jeff Yang)
Authorized Signatory :(Andy Chiu)
(Andy Chid)
Neutron Engineering Inc.
B1, No. 37, Lane 365, YangGuang St.,
NeiHu District 114, Taipei, Taiwan.
TEL: +886-2-2657-3299
FAX: +886-2-2657-3331
Testing Laboratory 0659



Declaration

Neutron represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with the standards traceable to National Measurement Laboratory (**NML**) of **R.O.C.**, or National Institute of Standards and Technology (**NIST**) of **U.S.A.**

Neutron'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. **Neutron** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **Neutron** issued reports.

Neutron's reports must not be used by the client to claim product endorsement by the authorities or any agency of the Government.

This report is the confidential property of the client. As a mutual protection to the clients, the public and **Neutron-self**, extracts from the test report shall not be reproduced except in full with **Neutron**'s authorized written approval.

Neutron's laboratory quality assurance procedures are in compliance with the **ISO Guide 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

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.



Table of Contents

REPOR	T ISSUED HISTORY	5
1	CERTIFICATION	6
2.	SUMMARY OF TEST RESULTS	7
2.1	TEST FACILITY	8
2.2	MEASUREMENT UNCERTAINTY	8
3	GENERAL INFORMATION	9
3.1	GENERAL DESCRIPTION OF EUT	9
3.2	DESCRIPTION OF TEST MODES	10
3.3	TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING	11
3.4	BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	12
3.5	DESCRIPTION OF SUPPORT UNITS	13
4	ANTENNA CONDUCTED SPURIOUS EMISSION	14
4.1	LIMIT	14
4.2	MEASUREMENT INSTRUMENTS LIST	14
4.3	TEST PROCEDURES	14
4.4	TEST SETUP LAYOUT	14
4.5	DEVIATION FROM TEST STANDARD	14
4.6	EUT OPERATING CONDITIONS	14
4.7	TEST RESULTS	15
5	6 DB BANDWIDTH	19
5.1	LIMIT	19
5.2	MEASUREMENT INSTRUMENTS LIST	19
5.3	TEST PROCEDURES	19
5.4	TEST SETUP LAYOUT	19
5.5	DEVIATION FROM TEST STANDARD	19
5.6	EUT OPERATING CONDITIONS	19
5.7	TEST RESULTS	20
6	PEAK OUTPUT POWER	22
6.1	LIMIT	22
6.2	MEASUREMENT INSTRUMENTS LIST	22
6.3	TEST PROCEDURES	22
6.4	TEST SETUP LAYOUT	22
6.5	DEVIATION FROM TEST STANDARD	22
6.6	EUT OPERATING CONDITIONS	22
6.7	TEST RESULTS	23
7	RADIATED SPURIOUS EMISSION (9 KHZ TO 1000MHZ)	24
7.1	LIMIT	24
7.2	MEASUREMENT INSTRUMENTS LIST	25



Table of Contents

7.3	MEASURING INSTRUMENTS AND SETTING	25
7.4	TEST PROCEDURES	26
7.5	DEVIATION FROM TEST STANDARD	26
7.6	TEST SETUP LAYOUT	26
7.7	EUT OPERATING CONDITIONS	27
7.8	TEST RESULTS	28
8	RADIATED SPURIOUS EMISSION (ABOVE 1 GHZ)	30
8.1	LIMIT	30
8.2	MEASUREMENT INSTRUMENTS LIST	31
8.3	MEASURING INSTRUMENTS AND SETTING	31
8.4	TEST PROCEDURES	32
8.5	DEVIATION FROM TEST STANDARD	32
8.6	TEST SETUP LAYOUT	32
8.7	EUT OPERATING CONDITIONS	33
8.8	TEST RESULTS	34
8.9	TEST RESULTS (RESTRICTED BANDS REQUIREMENTS)	46
9	POWER SPECTRAL DENSITY	50
9.1	LIMIT	50
9.2	MEASUREMENT INSTRUMENTS LIST	50
9.3	TEST PROCEDURES	50
9.4	TEST SETUP LAYOUT	50
9.5	DEVIATION FROM TEST STANDARD	50
9.6	EUT OPERATING CONDITIONS	50
9.7	TEST RESULTS	51
10	RF EXPOSURE COMPLIANCE	53
10.1	LIMIT	53
10.2	MEASUREMENT INSTRUMENTS LIST	53
10.3	MPE CALCULATION METHOD	53
10.4	TEST SETUP LAYOUT	54
10.5	DEVIATION FROM TEST STANDARD	54
10.6	EUT OPERATING CONDITIONS	54
10.7	TEST RESULTS	54
11	EUT TEST PHOTO	55



REPORT ISSUED HISTORY

Revised Version No.	Description	Issued Date
-	Initial Issue.	Sep. 10, 2012



1 CERTIFICATION

Equipment : TOUR de GUIDE
Brand Name : BANKEN
Model Name : HEI-23Y-L
Applicant : BANKEN CO., LTD
Date of Test : Aug. 15, 2012 ~ Aug. 31, 2012
Standards : FCC Part 15, Subpart C: 2010
ANSI C63.4: 2009

The above equipment has been tested and found compliance with the requirement of the relative standards by Neutron Engineering Inc. EMC Laboratory.

The test data, data evaluation, and equipment configuration contained in our test report (Ref No. NEI-FCCP-1-1207019) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of NVLAP and TAF according to the ISO-17025 quality assessment standard and technical standard(s).

2. SUMMARY OF TEST RESULTS

Standard Clause	Test Item	Result
15.207	Conducted Emission	N/A
15.247 (c)	Antenna conducted Spurious Emission	PASS
15.247 (a)(2)	6dB Bandwidth	PASS
15.247 (b)	Peak Output Power	PASS
15.247 (c)	Radiated Spurious Emission	PASS
15.247 (d)	Power Spectral Density	PASS
15.203	Antenna Requirement	PASS
1.1307 1.1310 2.1091 2.1093	RF Exposure Compliance	PASS

NOTE: N/A: denotes test is not applicable in this Test Report

2.1 TEST FACILITY

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

Radiated emission Test (Below 1 GHz):

CB08: (FCC RN: 614388; FCC DN: TW1054; IC Assigned Code: 4428C-1)

1F., No. 61, Ln. 77, Sing-ai Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C.)

Radiated emission Test (Above 1 GHz):

CB08: (FCC RN: 614388; FCC DN: TW1054; IC Assigned Code: 4428C-1)

1F., No. 61, Ln. 77, Sing-ai Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C.)

2.2 MEASUREMENT UNCERTAINTY

The measurement uncertainty is not specified by FCC rules and for reference only.

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**%.

The measurement instrumentation uncertainty considerations contained in CISPR 16-4-2.

A. Radiated emission test:

Test Site	Item	Measurement Frequency Range		Uncertainty	NOTE		
			30 - 200MHz	3.35 dB			
		Horizontal	200 - 1000MHz	3.11 dB			
	Radiated	Polarization	1 - 18GHz	3.97 dB			
CB08	emission at		18 - 40GHz	4.01 dB			
CBUO				3m	30 - 200MHz	3.22 dB	
	511	Vertical	200 - 1000MHz	3.24 dB			
		Polarization	1 - 18GHz	4.05 dB			
			18 - 40GHz	4.04 dB			

Our calculated Measurement Instrumentation Uncertainty is shown in the tables above. These are our U_{lab} values in CISPR 16-4-2 terminology.

Since Table 1 of CISPR 16-4-2 has values of measurement instrumentation uncertainty, called U_{CISPR} , as follows:

Conducted Disturbance (mains port) – 150 kHz – 30 MHz : 3.6 dB

Radiated Disturbance (electric field strength on an open area test site or alternative test site) – 30 MHz - 1000 MHz : 5.2 dB

It can be seen that our $U_{\mbox{\tiny lab}}$ values are smaller than $U_{\mbox{\tiny CISPR}}.$

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	TOUR de GUIDE		
Brand Name	BANKEN		
Model Name	HEI-23Y-L		
OEM Brand/Model Name	N/A		
Model Difference	N/A		
Product Description	The EUT is a TOUR de GUIDE. Operation Frequency 2405 MHz ~ 2480 MHz Modulation Type GFSK Number Of Channel 16 Antenna Designation Please refer to the Note 3. Antenna Gain(Peak) Please refer to the Note 3. Output Power -12.05 dBm (Max.) Based on the application, features, or specification exhibited in Us Manual, the EUT is considered as an ITE/Computing Device. Mor details of EUT technical specification, please refer to the User's Manual.		
Power Source	Battery supplied.		
Power Rating	I/P: DC 3V (2*AA)		
Connecting I/O Port(s)	Please refer to the User's Manual		
Products Covered	N/A		
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:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2405	07	2435	13	2465
02	2410	08	2440	14	2470
03	2415	09	2445	15	2475
04	2420	10	2450	16	2480
05	2425	11	2455		
06	2430	12	2460		
	2430	12			

3. Table for Filed Antenna

۰.						
	Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
	1	SAsystems	GUIDE-2.4G-ANT	Variation	Solder	2.65

3.2 DESCRIPTION OF TEST MODES

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 above was evaluated respectively.

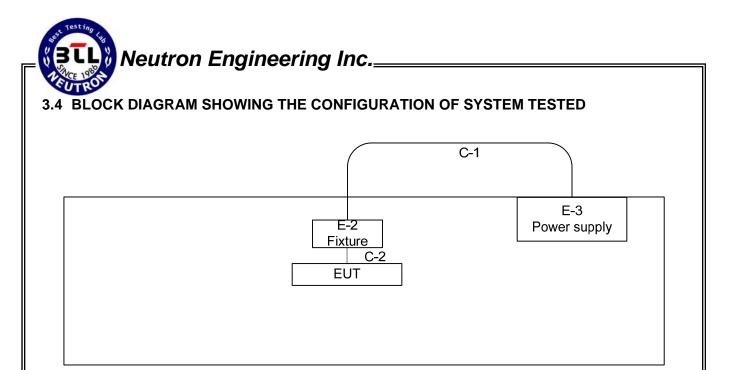
Test Items	Mode	Data Rate	Tested Channel/Mode
Antenna conducted Spurious Emission	GFSK		2405 MHz, 2480 MHz
6dB Bandwidth	GFSK		2405 MHz, 2440 MHz, 2480 MHz
Peak Output Power	GFSK		2405 MHz, 2440 MHz, 2480 MHz
Radiated Spurious Emission (30MHz to 1 GHz)	GFSK		2440 MHz
Radiated Spurious Emission (above 1 GHz)	GFSK		2405 MHz, 2440 MHz, 2480 MHz
Power Spectral Density	GFSK		2405 MHz, 2440 MHz, 2480 MHz
Antenna Requirement	GFSK		
RF Exposure Compliance	GFSK		

NOTE: The measurements are performed at the highest, middle, lowest available channels.

3.3 TABLE OF PARAMETERS OF TEXT 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.

Test software Version	Hardware		
Frequency	2405 MHz	2440 MHz	2480 MHz
Parameter	Мах	Мах	Мах



3.5 DESCRIPTION OF SUPPORT UNITS

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

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
E-1	TOUR de GUIDE	BANKEN	HEI-23Y-L	VGWHEI-23Y-1	N/A	EUT
E-2	Fixture	N/A	N/A	N/A	N/A	
E-3	DC Power Supply	Lokc	DPS-3050	N/A	400003829	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	45cm	Power line
C-2	NO	NO	30cm	Control line

NOTE: The support equipment was authorized by Declaration of Conformity (DOC).

4 ANTENNA CONDUCTED SPURIOUS EMISSION

4.1 LIMIT

Test Item	Frequency Range (MHz)	Limit
Antenna conducted Spurious Emission	30-25000	20dB less than the peak value of fundamental frequency

4.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100129	Oct. 06, 2012

NOTE: N/A: denotes No Model Name, No Serial No. or No Calibration specified.

4.3 TEST PROCEDURES

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting : RBW= 100KHz, VBW=100KHz, Sweep time = Auto.

4.4 TEST SETUP LAYOUT



4.5 DEVIATION FROM TEST STANDARD

No deviation

4.6 EUT OPERATING CONDITIONS

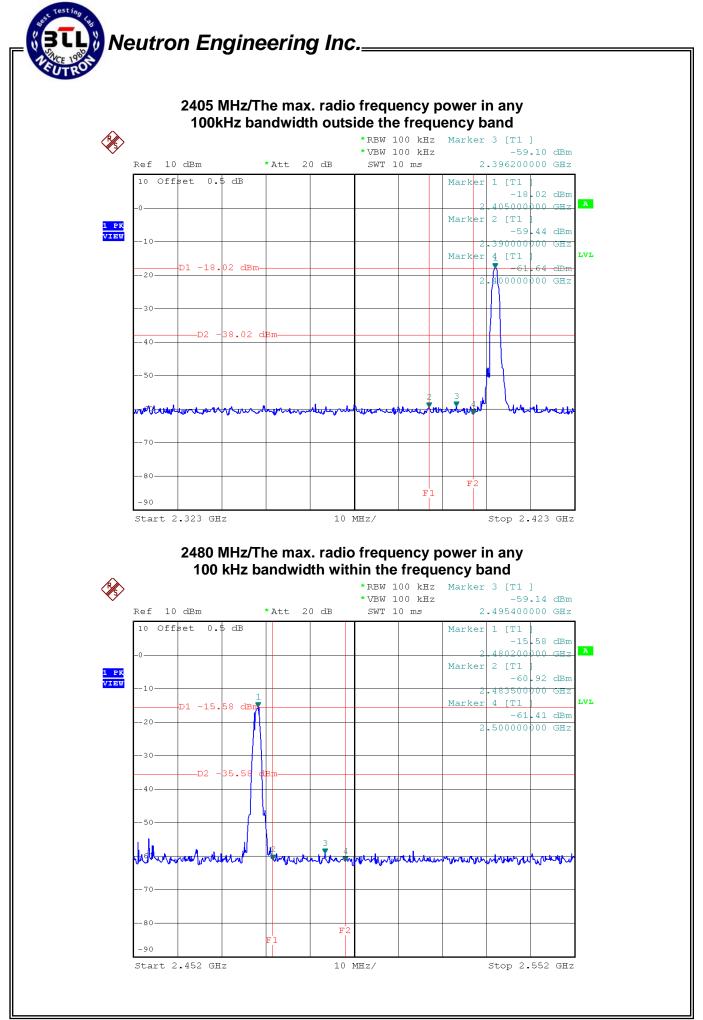
The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

4.7 TEST RESULTS

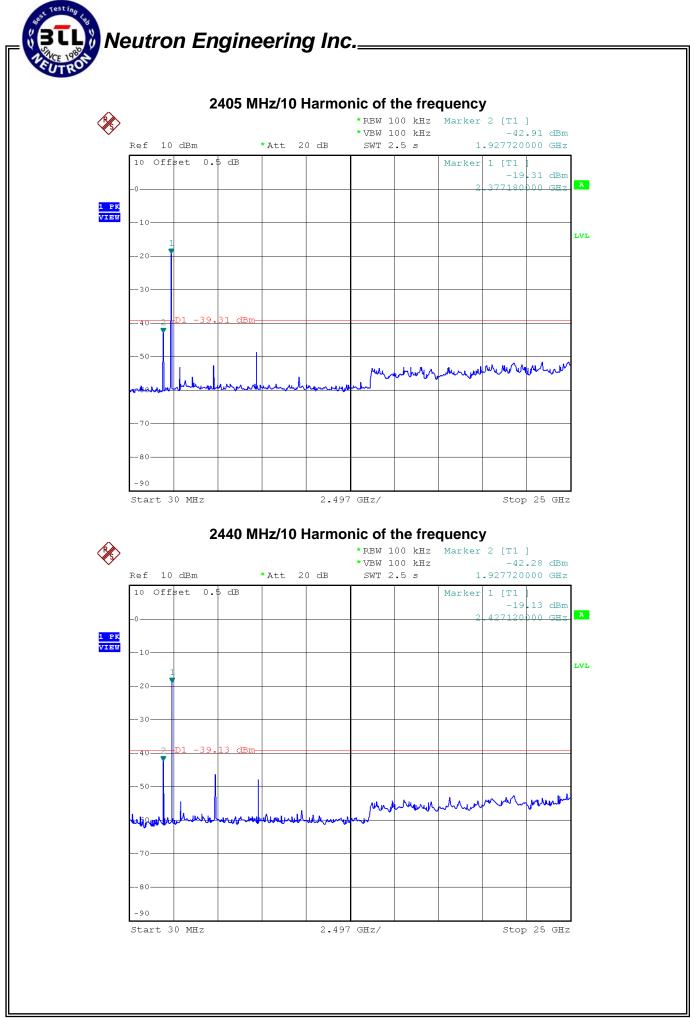
E.U.T	TOUR de GUIDE	Model Name	HEI-23Y-L	
Temperature	26°C	Relative Humidity	46%	
Test Voltage	DC 3V			
Test Mode	2405 MHz, 2440 MHz, 2480 MHz			

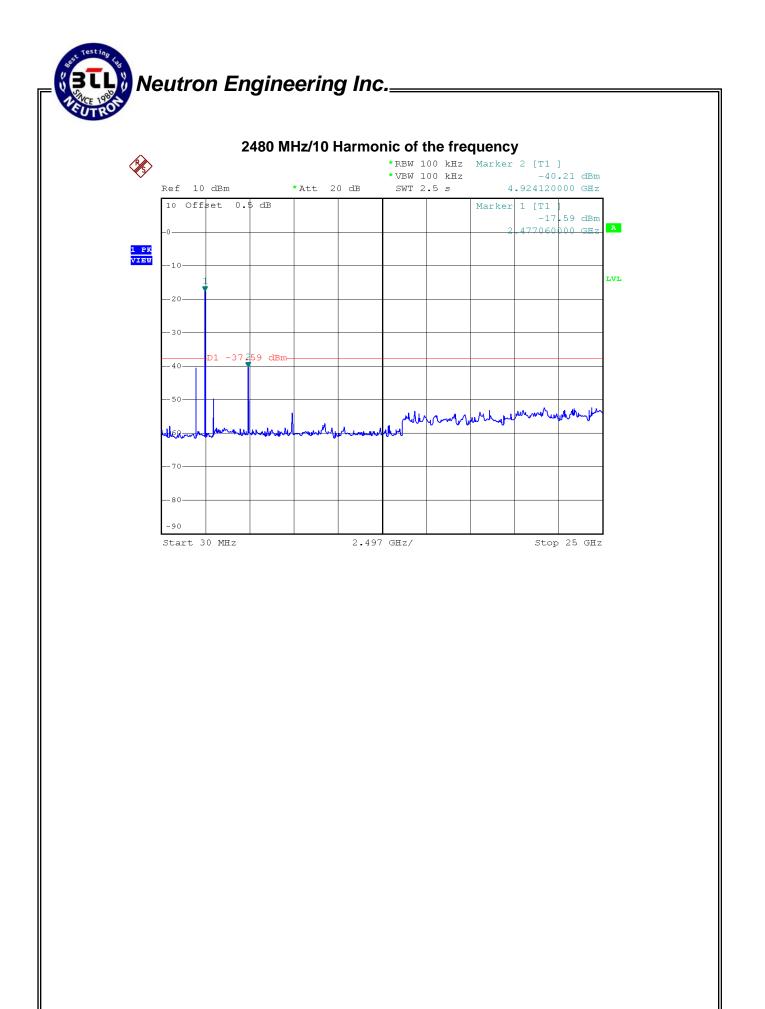
Channel of Worst Data				
The max. radio frequenc bandwidth outside the free		The max. radio frequency bandwidth within the freq		
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)	
2396.20	-59.10	2495.40	-59.14	
Result				

In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 20dB below that in the 100kHz bandwidth within the band that contains the highest lever of the desired power.



Report No.: NEI-FCCP-1-1207019





5 6 DB BANDWIDTH

5.1 LIMIT

Test Item	Frequency Range (MHz)	Limit
Bandwidth	2400-2483.5	≥ 500 kHz (6 dB bandwidth)

5.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100129	Oct. 06, 2012

NOTE: N/A: denotes No Model Name, No Serial No. or No Calibration specified.

5.3 TEST PROCEDURES

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. Spectrum Setting : RBW= 100KHz, VBW=100KHz, Sweep time = Auto.

5.4 TEST SETUP LAYOUT



5.5 DEVIATION FROM TEST STANDARD

No deviation

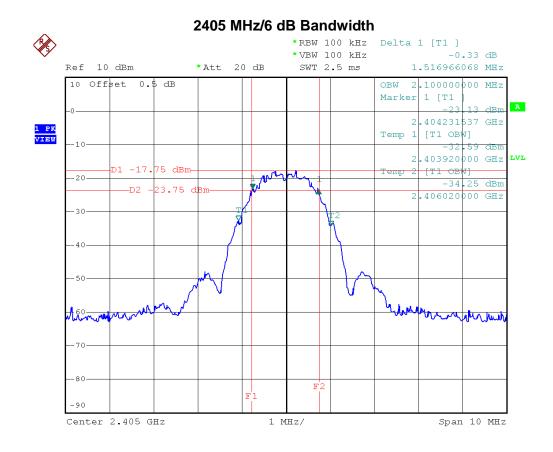
5.6 EUT OPERATING CONDITIONS

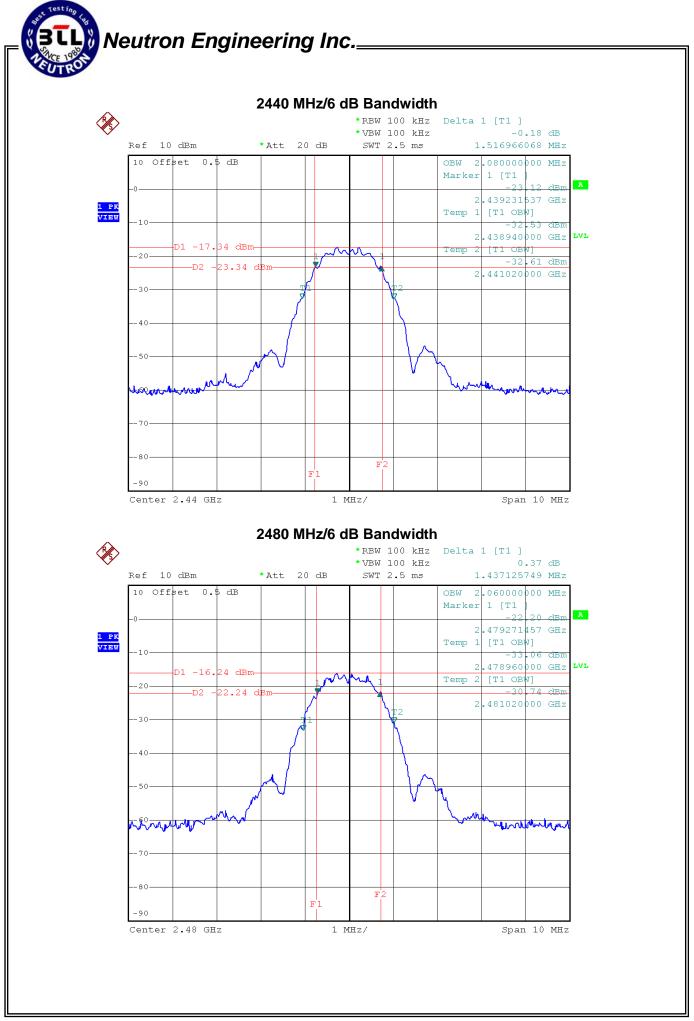
The EUT tested system was configured as the statements of 4.6 Unless otherwise a special operating condition is specified in the follows during the testing.

5.7 TEST RESULTS

E.U.T	TOUR de GUIDE	Model Name	HEI-23Y-L
Temperature	26°C	Relative Humidity	46%
Test Voltage	DC 3V		
Test Mode	2405 MHz, 2440 MHz, 2480 MHz		

Frequency	6 dB Bandwidth (MHz)	99% Occupied BW (MHz)	LIMIT (kHz)	Result
2405 MHz	1.52	2.10	≥ 500	PASS
2440 MHz	1.52	2.08	≥ 500	PASS
2480 MHz	1.44	2.06	≥ 500	PASS





Report No.: NEI-FCCP-1-1207019



6 PEAK OUTPUT POWER

6.1 LIMIT

Test Item	Frequency Range (MHz)	Limit
Peak Output Power	2400-2483.5	1 watt or 30 dBm

6.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Power Meter	Anritsu	ML2495A	1128008	Feb,20,2013
2	Power Meter Sensor	Anritsu	MA2411B	1126001	Feb,20,2013

NOTE: N/A: denotes No Model Name, No Serial No. or No Calibration specified.

6.3 TEST PROCEDURES

The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.

6.4 TEST SETUP LAYOUT



6.5 DEVIATION FROM TEST STANDARD

No deviation

6.6 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 4.6 Unless otherwise a special operating condition is specified in the follows during the testing.

6.7 TEST RESULTS

E.U.T	TOUR de GUIDE	Model Name	HEI-23Y-L
Temperature	26°C	Relative Humidity	46%
Test Voltage	DC 3V		
Test Mode	2405 MHz, 2440 MHz, 2480 MHz		

Frequency	Peak Output Power (dBm)	LIMIT (dBm)	Result
2405 MHz	-12.60	30	PASS
2440 MHz	-12.05	30	PASS
2480 MHz	-12.22	30	PASS

7 RADIATED SPURIOUS EMISSION (9 kHz to 1000 MHz)

7.1 LIMIT

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequency Range: 9 kHz to 1 GHz							
FREQUENCY (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)					
0.009~0.490	2400/F(kHz)	300					
0.490~1.705	24000/F(kHz)	30					
1.705~30.0	30	30					
30~88	100	3					
88~216	150	3					
216~960	200	3					
Above 960	500	3					

Frequency Range: above 1 GHz									
FREQUENCY	Class A (dBu	V/m) (at 3m)	Class B (dBuV/m) (at 3m)						
(MHz)	PEAK	AVERAGE	PEAK	AVERAGE					
above 1 GHz	80	60	74	54					

NOTE:

- (1) The limit for radiated test was performed according to FCC PART 15B.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).
- (4) 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

7.2 MEASUREMENT INSTRUMENTS LIST

ÿ

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100129	Oct. 06, 2012
2	EMI Test Receiver	Agilent	N9038A	MY51210215	Jan. 26, 2013
3	Horn Antenna	Schwarzbeck	BBHA 9120	D-325	Apr. 16, 2013
4	Microwave Pre_amplifier	Agilent	8449B	3008A01714	Apr. 17, 2013
5	Microflex Cable	N/A	N/A	1m	Apr. 14, 2013
6	Microflex Cable	AISI	S104-SMAP-1	10m	Apr. 14, 2013
7	Microflex Cable	N/A	N/A	3m	Apr. 14, 2013
8	Test Cable	N/A	LMR-400	966_12m	May. 15, 2013
9	Test Cable	N/A	LMR-400	966_3m	May. 15, 2013
10	Pre-Amplifier	EMC	EMC-330	980001	Jun. 07, 2013
11	Log-Bicon Antenna	Schwarzbeck	VULB9168-352	9168-352	Jun. 12, 2013

Remark: "N/A" denotes No Model Name, No Serial No. or No Calibration specified.

7.3 MEASURING INSTRUMENTS AND SETTING

EMI Test Receiver	Parameter Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP



7.4 TEST PROCEDURES

- a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1 GHz. For frequencies above 1 GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3m Semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. 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.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.
- g. The testing follows the guidelines in ANSI C63.4 and FCC Public Notice DA 00-705 Measurement Guidelines. In case the emission is fail due to the used RBW/VBW is too wide, marker-delta method of FCC Public Notice DA 00-705 will be followed.

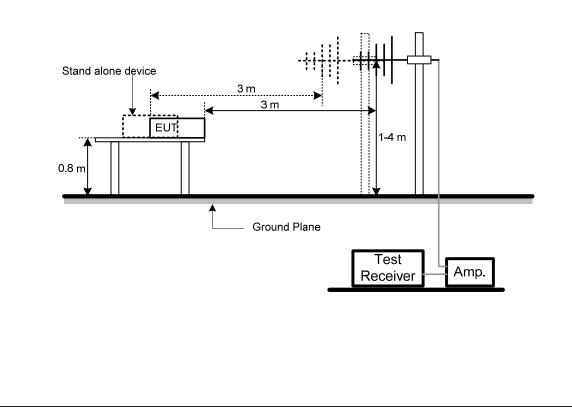
NOTE:

- a. Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode with Detector BW=120 kHz; SPA setting in RBW=100 kHz, VBW =100 kHz, Swp. Time = 0.3 sec./ MHz.
- b. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.

7.5 DEVIATION FROM TEST STANDARD

No deviation

7.6 TEST SETUP LAYOUT





7.7 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **4.1.6** Unless otherwise a special operating condition is specified in the follows during the testing.

7.8 TEST RESULTS

.U.T			JR de GL	JIDE		M	odel Nar	me	HEI-23Y-	·L		
Temper	rature	26°C	5			Re	elative H	lumidity	60%			
Test Vo	ltage	DC 3	3V									
Test Mo	ode	244(0 MHz									
90.	.0 dBu¥	√/m			Polari	zation:	: Vertica	.l				
										Limit	c —	
40 -10 30		127.00	224.00	321.00	418.00	2	3 X 612.00	4 * 709.00	806.00	Xcu	6 × 1000.00	- - - - -
No. M	N2233 1118	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over					
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment			
1	319.0		39.98	-17.70	22.28	46.00	-23.72	peak				
2	466.5		32.21	-13.98	18.23	46.00	-27.77	peak				
3	613.9		31.01	-10.61	20.40	46.00	-25.60	peak				
4	701.2		31.72	-9.63	22.09	46.00	-23.91	peak				
5	879.7		31.98	-7.43	24.55	46.00	-21.45	peak				
6*	953.4	400	30.80	-5.15	25.65	46.00	-20.35	peak				



.U.T		TOL	JR de GL	JIDE		M	odel Nar	ne	HEI-23Y-	L		
empe	rature	e 26°C)			Re	elative H	umidity	60%			
est Vo	oltage	DC C	3V									
est M	ode	244() MHz									
90.	.0 dBu	JV/m			Polariza	ation: F	lorizont	al				
										Limit	-	
40												
				¥								
						-		з×	*	5 *	6×	1
						2 X						1
												1
-10												
	30.000	127.00	224.00	321.00	418.00	515.00	612.00	709.00	806.00		1000.00	MHz
No. M	lk. I	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over					
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment			
1 *	319.	0600	50.79	-17.70	33.09	46.00	-12.91	peak				
2	487.	8400	32.16	-14.04	18.12	46.00	-27.88	peak				
3	697.	3600	31.67	-9.69	21.98	46.00	-24.02	peak				
4	800.	1800	31.39	-7.95	23.44	46.00	-22.56	peak				
5	879.	7200	31.25	-7.43	23.82	46.00	-22.18	peak				
6	941.	8000	31.00	-5.54	25.46	46.00	-20.54	peak				

8 RADIATED SPURIOUS EMISSION (Above 1 GHz)

8.1 LIMIT

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequency Range: 9 kHz to 1 GHz							
FREQUENCY (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)					
0.009~0.490	2400/F(kHz)	300					
0.490~1.705	24000/F(kHz)	30					
1.705~30.0	30	30					
30~88	100	3					
88~216	150	3					
216~960	200	3					
Above 960	500	3					

Frequency Range: above 1 GHz								
FREQUENCY	Class A (dBu	V/m) (at 3m)	Class B (dBuV/m) (at 3m)					
(MHz)	PEAK	AVERAGE	PEAK	AVERAGE				
above 1 GHz	80	60	74	54				

NOTE:

- (1) The limit for radiated test was performed according to FCC PART 15B.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).
- (4) 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

8.2 MEASUREMENT INSTRUMENTS LIST

3

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100129	Oct. 06, 2012
2	EMI Test Receiver	Agilent	N9038A	MY51210215	Jan. 26, 2013
3	Horn Antenna	Schwarzbeck	BBHA 9120	D-325	Apr. 16, 2013
4	Microwave Pre_amplifier	Agilent	8449B	3008A01714	Apr. 17, 2013
5	Microflex Cable	N/A	N/A	1m	Apr. 14, 2013
6	Microflex Cable	AISI	S104-SMAP-1	10m	Apr. 14, 2013
7	Microflex Cable	N/A	N/A	3m	Apr. 14, 2013
8	Test Cable	N/A	LMR-400	966_12m	May. 15, 2013
9	Test Cable	N/A	LMR-400	966_3m	May. 15, 2013
10	Pre-Amplifier	EMC	EMC-330	980001	Jun. 07, 2013
11	Log-Bicon Antenna	Schwarzbeck	VULB9168-352	9168-352	Jun. 12, 2013

Remark: "N/A" denotes No Model Name, No Serial No. or No Calibration specified.

8.3 MEASURING INSTRUMENTS AND SETTING

Spectrum Analyzer	Parameter Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (other emission)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average



8.4 TEST PROCEDURES

- a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1 GHz. For frequencies above 1 GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3m Semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. 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.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.
- g. The testing follows the guidelines in ANSI C63.4 and FCC Public Notice DA 00-705 Measurement Guidelines. In case the emission is fail due to the used RBW/VBW is too wide, marker-delta method of FCC Public Notice DA 00-705 will be followed.

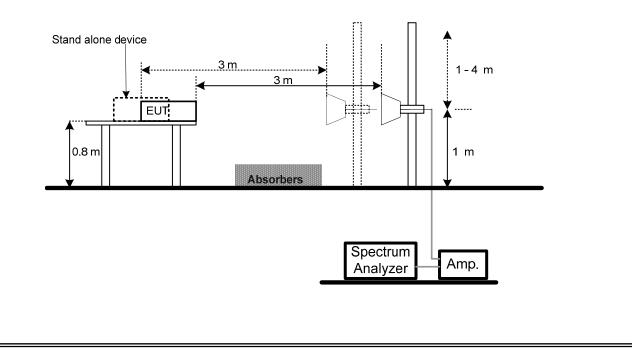
NOTE:

- Reading in which marked as Peak means measurements by using are Peak Mode with instrument setting in RBW= 1 MHz, VBW= 1 MHz, Swp. Time = Auto.
 Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW= 1 MHz, VBW= 10 Hz, Swp. Time = Auto.
- b. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn't perform.

8.5 DEVIATION FROM TEST STANDARD

No deviation

8.6 TEST SETUP LAYOUT





8.7 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **4.1.6** Unless otherwise a special operating condition is specified in the follows during the testing.

8.8 TEST RESULTS

U.T		TOU	IR de GU	ЛDЕ		M	odel Na	ame	HEI-23Y	-L		
empe	erature	26°C	;			R	elative l	Humidity	60%			
est V	oltage	DC 3	3V									
est M	ode	2405	5 MHz									
120).0 dBuV	1-			Polari	zation	: Vertica	al				
120		/m								Limit: AVG:	_]
7	0		1x									
20.	0	2385.00	2390.00	2395.00	2400.00	2405.0	0 2410.1	00 2415.0	0 2420.00		2430.00	MHz
No. N	/k. Fi	req.	Reading Level	Correct Factor	Measure- ment	Limit	Over					
	105	lHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment			
1	2390.		21.95	32.99	54.94	74.00	-19.06	peak				
2	2390.		11.46	32.99	44.45	54.00	-9.55	AVG				
3 >	(2405.		54.32	33.07	87.39	74.00	13.39	peak				
	2405.	~~~	52.20	33.07	85.27	54.00	31.27	AVG				



U.T			UR de GU	ЛDE			odel Na		HEI-23Y-I	L		
emp	era	ture 26°				Re	lative I	Humidity	60%			
est \	√olt;	age DC	3V									
est I	Noc	le 240	05 MHz									
	20.0	dBuV/m			Polari	zation:	Vertica	al				
1.	20.0	QRAA.W								Limit: AVG:		
	70				5							
	-			3 X	\$ \$	_	-					
			×	×								
2	0.0	2 202 2550 0	C100.00	0050.00	11200.00	10750.0	0 10000	10050	22 21 400 00		20500 00 MIL-	
No.		0.000 3550.0	Reading Level	8650.00 Correct Factor	11200.00 Measure- ment	13750.00	0 16300 Over	0.00 18850.0	00 21400.00		26500.00 MHz	
	1.112.54	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment			
1	1	4811.430	56.24	-2.24	54.00	74.00	-20.00	peak				
2		4811.430	39.56	-2.24	37.32	54.00	-16.68	AVG				
3	-	7215.580	49.25	2.82	52.07	74.00	-21.93	peak				
4	-	7215.580	37.11	2.82	39.93	54.00	-14.07	AVG				
5	ç	9620.180	52.14	4.18	56.32	74.00	-17.68	peak				
6	* 9	9620.180	39.57	4.18	43.75	54.00	-10.25	AVG				



.U.	Г		τοι	JR de GU	IDE		Μ	odel Na	ime	HEI-23Y-L				
emp								Relative Humidity 60%						
est `	Vol	tage	DC (3V										
est	Мо	de	240	5 MHz										
1	20.0	dBu∀∕	m			Polariza	ation: I	Horizon	ital					
											Limit: AVG:	Ξ]	
	70			1X										
2	0.0 23	BO.000 2	385.00	2390.00	2395.00	2400.00	2405.00) 2410.0	00 2415.00	0 2420.00		2430.00	MHz	
No.	Mk	. Fr	eq.	Reading Level	Correct Factor	Measure- ment	Limit	Over						
		M	Ηz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment				
1		2390.0	000	22.12	32.99	55.11	74.00	-18.89	peak					
2		2390.0	000	11.46	32.99	44.45	54.00	-9.55	AVG					
3	Х	2405.0		52.32	33.07	85.39	74.00	11.39	peak					
4	*	2405.0	000	50.14	33.07	83.21	54.00	29.21	AVG					



.U.T	TOU	IR de GU	IIDE		Mc	del Nan	ne	HEI-23Y-L		
emper	rature 26°C	;			Re	lative H	umidity	60%		
Test Vo	oltage DC 3	3V								
Test Mo	ode 2405	5 MHz								
120.	.0 dBu∀/m			Polariza	ation: H	orizont	al			
166.									Limit: AVG:	
70										
		*	*	5X-6X						
20.0		*								
	000.000 3550.00	6100.00	8650.00	11200.00	13750.00	16300.0	0 18850.0	00 21400.00		26500.00 MHz
No. M	lk. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over				
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment		
1	4811.700	49.36	-2.24	47.12		-26.88	peak			
2	4811.700	38.44	-2.24	36.20		-17.80	AVG			
3	7215.230	47.21	2.82	50.03		-23.97	peak			
4	7215.230	35.21	2.82	38.03	54.00		AVG			
5	9620.000	42.35	4.18	46.53		-27.47	peak			
6*	9620.000	34.21	4.18	38.39	54.00	-15.61	AVG			



.U.T		TOU	IR de G	UIDE		Mo	odel Nar	me	HEI-23Y-L	-	
empe	erature	e 26°C	>			Re	elative H	lumidity	60%		
est V	oltage	DC 3	3V								
est M	lode	2440) MHz								
					Polari	zation:	Vertica	l			
120).0 dBu	JV/m								Limit: —	1
										AVG: —	
7	0										
20.	0										
1	2415.000	2420.00	2425.0	0 2430.00	2435.00	2440.00	2445.0	0 2450.00	2455.00	2465.00	MHz
No. N	/lk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over				
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment		
1)	× 2440	0.000	55.88	33.26	89.14	74.00	15.14	peak			
2 *	0440	0.000	53.71	33.26	86.97	54.00	32.97	AVG			



.U.T	ΤΟΙ	JR de GU	IDE		M	odel Na	ame	HEI-23Y-L	_
emper	ature 26°	С			Re	elative	Humidity	60%	
est Vo	ltage DC	3V							
est Mo	ode 244	0 MHz							
120.	0 dBuV/m			Polari	zation:	Vertic	al		
120.									Limit: — AVG: —
70									
		*	3 4	5X					
20.0		Î		^					
1	000.000 3550.00	6100.00	8650.00	11200.00	13750.0	0 16300	0.00 18850.	00 21400.00	26500.00 MH
No. M	k. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1	4848.950	52.29	-2.15	50.14	74.00	-23.86	peak		
2	4848.950	39.74	-2.15	37.59	54.00	-16.41	AVG		
3	7318.500	46.42	3.02	49.44	74.00	-24.56	peak		
4 *	7318.500	34.94	3.02	37.96	54.00	-16.04	AVG		
	9760.650	44.56	4.26	48.82	74.00	-25.18	peak		
5			4.26	37.71	54.00	-16.29	AVG		



E.U.T	•	Т	OU	R de (GUID	E			Ν	/lodel N	lame	H	EI-23Y	-L		
ſemp	era	ature 2	6°C						F	Relative	Humidity	/ 60)%			
「est ∖	/olt	age D)C 3	V												
Test N	No	de 2	440	MHz												
-0.37%	NIV123						Pola	riza	tion:	Horizo	ontal					
12	20.0	dBu∀/m												Limi AV6		
	70								*							
20	0.0	15.000 242	20.00	2425	5.00	2430.00	2435		2440.1	00 244	5.00 2450	00	2455.00		2465.00	MH7
	24	5.000 242				orrect	Meas		2440.0	JU 244	3.00 2430	.00	2433.00	2	2405.00	MILZ
No.	Mk	. Freq	г .	Readin Level		actor	mer		Limit	Over						
		MHz		dBuV		dB	dBuV/	m	dBuV/m	dB	Detector	Co	omment			
1	Х	2440.00	0	54.09	3	3.26	87.3	5	74.00	13.35	peak					
2	*	2440.00	-	51.88		3.26	85.1		54.00	31.14	AVG					



.U.T	TO	UR de GU	ЛDЕ		Μ	odel Na	ame	HEI-23Y-L	-	
emper	rature 26°	°C			Re	elative I	Humidity	60%		
est Vo	Itage DC	C 3V								
Fest Mc	ode 244	40 MHz								
120.0	0 dBuV/m			Polariza	ation: I	Horizor	ntal			
									Limit: AVG:	
70										
		¥	3 X	5 X						
		X	*	\$						
20.0 10	000.000 3550.0	00 6100.00	8650.00	11200.00	13750.0	00 16300	0.00 18850.	.00 21400.00		26500.00 MHz
No. M	k. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over				
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment		
1	4880.850	46.70	-2.07	44.63	74.00	-29.37	peak			
2	4880.850	36.48	-2.07	34.41	54.00	-19.59	AVG			
3	7321.600	45.73	3.03	48.76	74.00	-25.24	peak			
4	7321.600	31.70	3.03	34.73	54.00	-19.27	AVG			
5	9761.250	43.25	4.26	47.51	74.00	-26.49	peak			
6 *	9761.250	31.45	4.26	35.71	54.00	-18.29	AVG			



E.U.1	Г	TC	UR de GU	IDE		Mo	odel Nan	ne	HEI-23Y-L	_	
emp	bera	ature 26°	°C			Re	elative H	umidity	60%		
est '	Vol	tage DC	C 3V								
est	Мо	de 24	80 MHz								
1	20.0	dBuV/m			Polariz	zation:	Vertical	1			
	20.0	douy/m								Limit: AVG:	_
	70 -						n X				
2	20.0	55.000 2460.0	00 2465.00	2470.00	2475.00	2480.00	2485.00) 2490.00	0 2495.00	250	05.00 MHz
No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over				
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment		
1	Х	2480.000	55.93	33.48	89.41	74.00	15.41	peak			
2	*	2480.000	53.80	33.48	87.28	54.00	33.28	AVG			
3		2483.500	24.29	33.50	57.79	74.00	-16.21	peak			
4		2483.500	16.94	33.50	50.44	54.00	-3.56	AVG			



E.U.1	Г	TOU	R de GU	IDE		Μ	odel N	ame	HEI-23Y-	Ľ	
emp	peratu	ure 26°C	,			R	elative	Humidity	60%		
est '	Voltag	ge DC 3	3V								
est	Mode	2480) MHz								
		U			Dalar		Mantha				
1	20.0 d	dBu¥/m			Polari	ization	vertic	al			
										Limit: AVG:	
	70										
				З Х							
			1 X X	4	5						
			*	Î	6 X						
	_										
2	20.0										
	1000.0	000 3550.00	6100.00	8650.00	11200.00	13750.0	00 1630	0.00 18850.0	00 21400.00		26500.00 MHz
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over				
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment		
1	49	958.560	46.22	9.30	55.52	74.00	-18.48	peak			
2	49	958.560	40.53	9.30	49.83	54.00	-4.17	AVG			
3		139.329	47.15	16.16	63.31	74.00	-10.69	· ·			
		139.329	36.41	16.16	52.57	54.00	-1.43	AVG			
5 6		917.923	35.15	18.93	54.08	74.00	-19.92				
	99	917.923	27.58	18.93	46.51	54.00	-7.49	AVG			



E.U.	Г	TO	UR de GU	IDE		M	odel Nan	ne	HEI-23Y-I	_	
emp	bera	ature 26°	°C			Re	elative H	umidity	60%		
est `	Vol	Itage DC	C 3V								
est	Мо	de 248	80 MHz								
1	120.0) dBu∀/m			Polariza	ition: H	lorizont	al			
	20.0									Limit: — AVG: —	
	70					*	THE REAL PROPERTY IN THE REAL PROPERTY INTO THE REAL PR				
2	20.0	155.000 2460.0	00 2465.00	2470.00	2475.00	2480.00	2485.00) 2490.00) 2495.00	2505.00	MHz
No.	Mk	k. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over				
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment		
1	Х	2480.000	55.54	33.48	89.02	74.00	15.02	peak			
2	*	2480.000	53.35	33.48	86.83	54.00	32.83	AVG			
3		2483.500	24.14	33.50	57.64	74.00	-16.36	peak			
4		2483.500	16.57	33.50	50.07	54.00	-3.93	AVG			



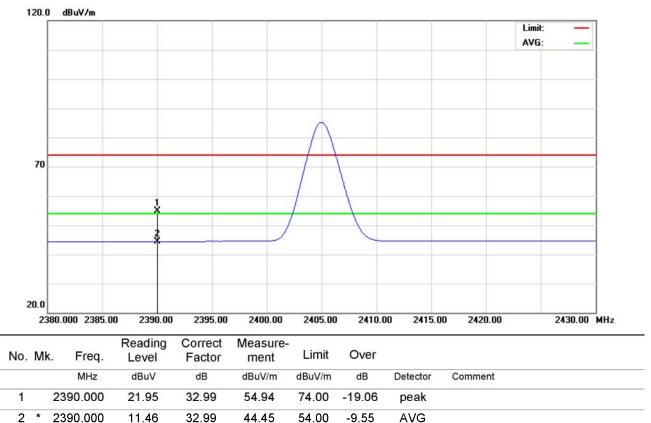
U.T	TOU	JR de GU	IDE		Mo	odel Na	me	HEI-23Y-L		
emper	ature 26°C)			Re	ative F	lumidity	60%		
est Vo	Itage DC 3	3V								
est Mo	de 2480	0 MHz								
120.0	0 dBu∀/m			Polariza	ation: F	lorizon	tal			
									Limit: AVG:	_
70										
10		1 *	3 X	5 X						
5		2	×	*	_					
		×								
20.0										
	000.000 3550.00	6100.00	8650.00	11200.00	13750.0	0 16300.	00 18850.	.00 21400.00		26500.00 MHz
No. Mł		Reading Level	Correct Factor	Measure- ment	Limit	Over				
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment		
1	4960.880	50.64	9.32	59.96	74.00	-14.04	peak			
2	4960.880	37.19	9.32	46.51	54.00	-7.49	AVG			
3	7438.240	49.44	16.16	65.60	74.00	-8.40	peak			
4 *	7438.240	35.35	16.16	51.51	54.00	-2.49	AVG			
5	9920.020	44.85	18.94	63.79	74.00	-10.21	peak			
6	9920.020	31.82	18.94	50.76	54.00	-3.24	AVG			

Neutron Engineering Inc.

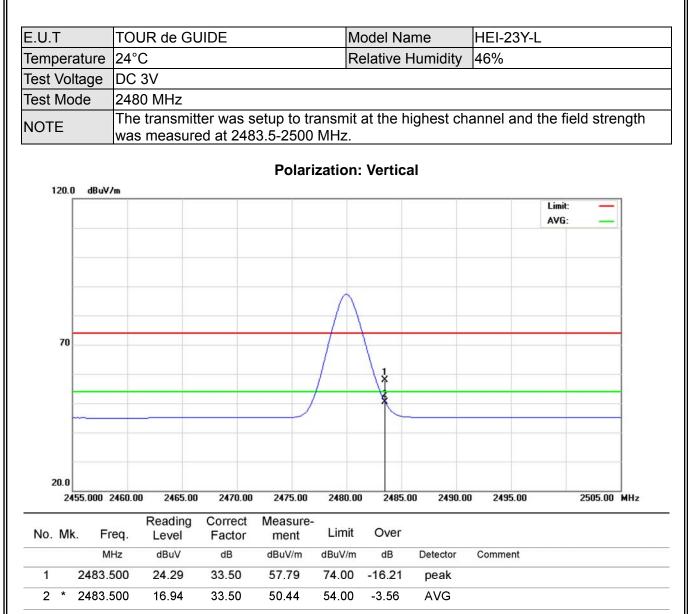
8.9 TEST RESULTS (RESTRICTED BANDS REQUIREMENTS)

			1
E.U.T	TOUR de GUIDE	Model Name	HEI-23Y-L
Temperature	24°C	Relative Humidity	46%
Test Voltage	DC 3V		
Test Mode	2405 MHz		
NOTE	The transmitter was setup to transm measured at 2310-2390 MHz.	nit at the lowest cha	nnel and the field strength was

Polarization: Vertical



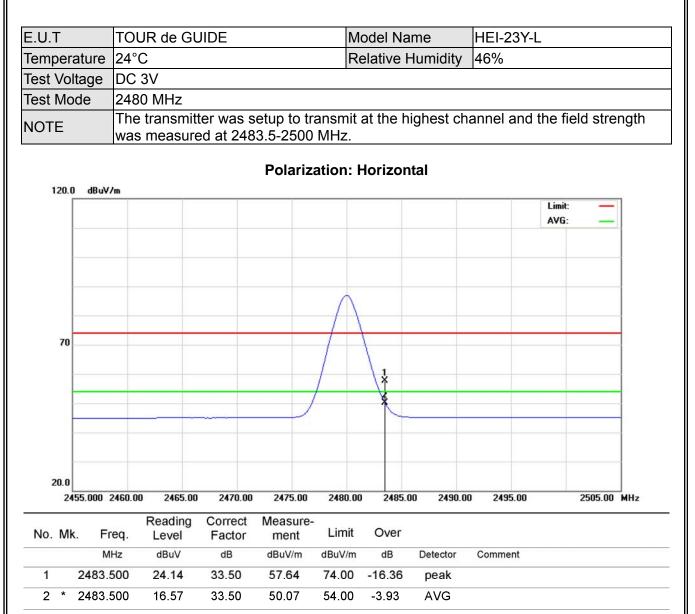






E.U.T	TOUR de GL	JIDE		M	odel Na	me	HEI-23Y-	٠L		
Temperature	24°C			Re	elative F	lumidity	46%			
Fest Voltage	DC 3V					,				
Fest Mode	2405 MHz									
NOTE	The transmit			ansmit	at the lo	west cha	nnel and	the fiel	d stren	gth wa
120.0 dBuV	4		Polariz	ation: F	lorizon	tal				
120.0 0804	/m							Limit:	_	í –
70								AVG:		
20.0										
2380.000	2385.00 2390.00	2395.00	2400.00	2405.00	2410.0	0 2415.00	2420.00		2430.00	MHz
No. Mk. F	Reading req. Level	Correct Factor	Measure- ment	Limit	Over					
	lHz dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment			
1 2390.	000 22.12	32.99	55.11	74.00	-18.89	peak				
	000 11.46	32.99	44.45	54.00	-9.55	AVG				





Neutron Engineering Inc.__

9 POWER SPECTRAL DENSITY

9.1 LIMIT

Test Item	Frequency Range (MHz)	Limit
Power Spectral Density	2400-2483.5	8 dBm (in any 3 kHz)

9.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100129	Oct. 06, 2012

NOTE: **N/A**: denotes No Model Name, No Serial No. or No Calibration specified.

9.3 TEST PROCEDURES

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. Spectrum Setting : RBW=3KHz, VBW=30KHz, Sweep time = 500s.

9.4 TEST SETUP LAYOUT



9.5 DEVIATION FROM TEST STANDARD

No deviation

9.6 EUT OPERATING CONDITIONS

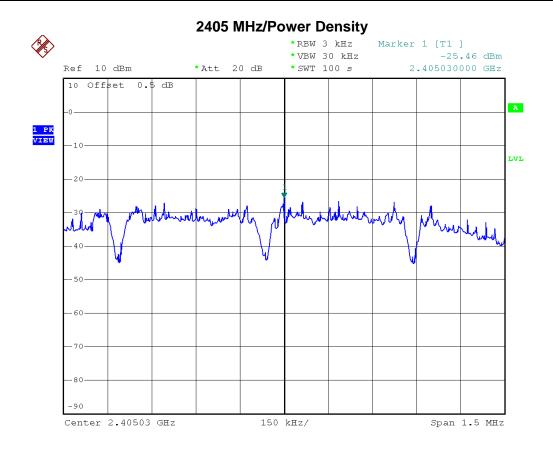
The EUT tested system was configured as the statements of 4.6 Unless otherwise a special operating condition is specified in the follows during the testing.

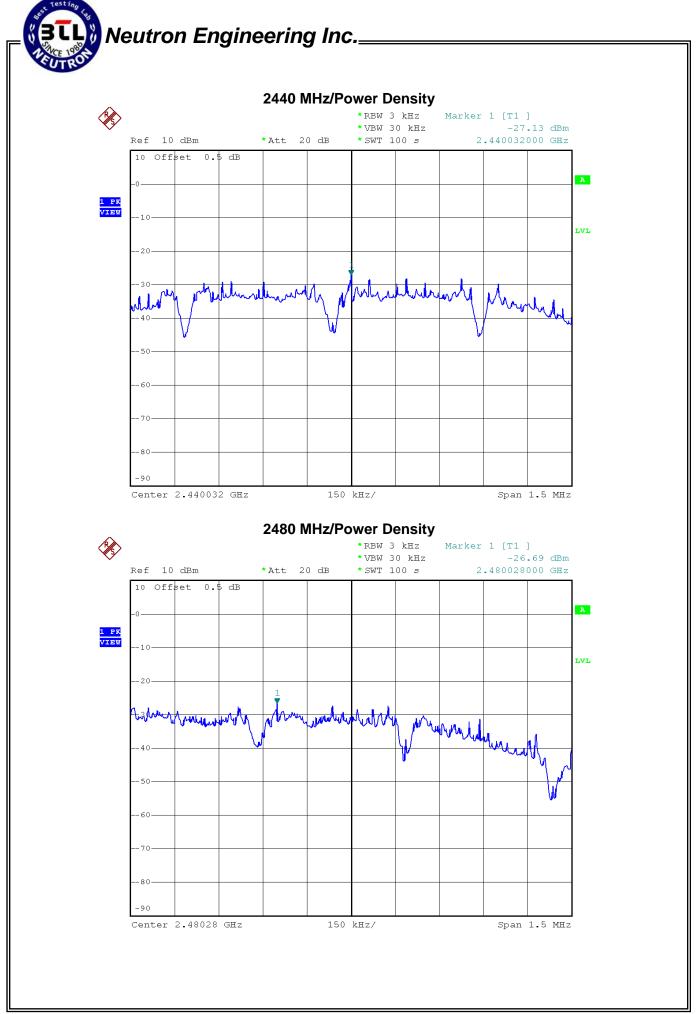
Neutron Engineering Inc._

9.7 TEST RESULTS

E.U.T	TOUR de GUIDE	Model Name	HEI-23Y-L
Temperature	26°C	Relative Humidity	60%
Test Voltage	DC 3V		
Test Mode	2405 MHz, 2440 MHz, 2480 MHz		

Frequency	Power Density (dBm)	LIMIT (dBm)	Result
2405 MHz	-25.46	8	PASS
2440 MHz	-27.13	8	PASS
2480 MHz	-26.69	8	PASS







10 RF EXPOSURE COMPLIANCE

10.1LIMIT

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device.

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)		Magnetic Field Strength (H) (A/m)	Power Density (5)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)		Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

NOTE: f = frequency in MHz ; *Plane-wave equivalent power density.

10.2MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Power Meter	Anritsu	ML2495A	1128008	Feb,20,2013
2	Power Meter Sensor	Anritsu	MA2411B	1126001	Feb,20,2013

NOTE: N/A: denotes No Model Name, No Serial No. or No Calibration specified.

10.3MPE CALCULATION METHOD

$$\mathsf{E}(\mathsf{V/m}) = \frac{\sqrt{30 \times P \times G}}{d}$$

Power Density: $Pd(W/m^2) = \frac{H}{2}$

$$=\frac{E^2}{377}$$

 \mathbf{E} = Electric field (V/m)

 \mathbf{P} = Peak RF output power (W)

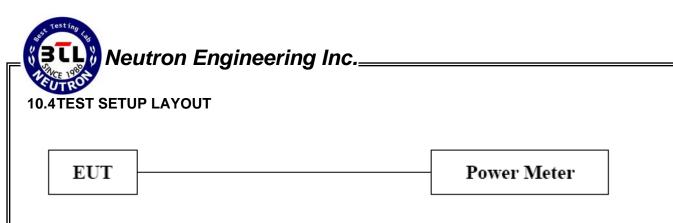
G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$\mathsf{Pd} = \frac{30 \times P \times G}{377 \times d^2}$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained



10.5DEVIATION FROM TEST STANDARD

No deviation

10.6EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 4.6 Unless otherwise a special operating condition is specified in the follows during the testing.

10.7TEST RESULTS

The power is so low so there is no need for RF calculations.