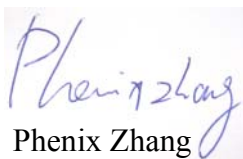



## FCC Test Report (TR-1010-043-01)

**Applicant** : Beam Communications Pty Ltd.  
**Address** : 5/8 Anzed court Mulgrave, Victoria, Australia 3170  
**Manufacturer** : Season Components Co., Ltd.  
**Address** : Jun Da Lu, DongKeng, Dongguan, Guangdong, China  
**Product Name** : Oceana 400, Terra 400  
**Trademark** : None  
**Model(s)** : OC400, TR400  
**Standard(s)** : FCC Part 25: 2009  
**Test Result** : Pass  
**Date of Test** : Jan 12, 2011 to Feb 09, 2011  
**Report issued Dated** : Jun 28, 2011

The report shall not be reproduced except in full, without the written approval of the TDK EMC Center.

The results in this report apply only to the sample(s) tested. The production units are required to conform to the initial sample as received when the units are placed in the market.

Responsible Engineer	:		Approved by	:	
		Phenix Zhang	Technical manager		CHAN king-chui
Date	:	2011.06.28	Date	:	2011.06.28

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## 1. Description of the Test Site

### 1.1 Test Site Location:

Laboratory	:	TDK South China EMC Center SAE Technologies Development (Dongguan) Co., Ltd. Changan Branch
Address	:	Zhenan Hi-tech Industrial Park, Dongguan City, Guangdong Province, China
Phone no.	:	(86)-769-8564-4678
Fax no.	:	(86)-769-8564-4499
Email	:	<a href="mailto:emc@cn.tdk.com">emc@cn.tdk.com</a>

### 1.2 Site Registration

VCCI (September, 2008)	:	Reg. No. R-2205, C-2392
FCC site registration (July, 2008)	:	Reg. No. 732901
IC registration	:	Reg. No. 7993A
EMCC (September, 2008)	:	Reg. No. NAR/tl-060330
CNAS(August, 2010)	:	Reg. No. L4677

### 1.3 Test Scope

EMC and RF testing according to national / international standards

## 2. Description of the Tested Samples

### 2.1 Customer Information

Customer : Beam Communications Pty Ltd.  
Address : 5/8 Anzed court Mulgrave, Victoria, Australia 3170  
Phone no. : NIL  
Fax no. : NIL

### 2.2 Identification of EUT

Trademark : None  
Model(s) No. : OC400  
Serial No. : None

### 2.3 Spec of EUT

Description of Antenna : Type: active antenna,  
Model: AT1595-83  
Receive Amplifier : 26 dB max  
Transmit Amplifier : 11 dB max  
Gain : 6.0 dBi max  
Max. RF Input Power: 30.0 dBm  
Max. RF Output Power: 37.5 dBm  
FCC ID: YP9AT1595, IC: 9218A-AT1595

Power Supply : 15V DC, 4A

Description of adaptor : Trademark: UNIFIVE  
Model: UEC360-1540  
Input: AC 100-240V, 50/60Hz, 1.5A  
Output: DC 15V 4A

Operation Frequency : 1626.5 – 1660.5 MHz transmit  
1525.0 – 1559.0 MHz receive

Nominal Bandwidth : 70 kHz

Number of Channels : 169

ITU Emission Designator : 1G64 G2W

Type of Modulation : TX: GMSK; RX: OQPSK

Nominal Output Power : 30dBm

Type of Connector : TNC (GMR 2+) and SMA (GPS)

## 2.4 Test Standards List

FCC Part 25 (2009)  
SATELLITE COMMUNICATIONS

## 3. Test Specifications

### 3.1 Standard(s) Used

FCC Rules	Description Of Test	Result
25.204(a)	Power Limit	Pass
2.1049	99% Occupied Bandwidth	Pass
25.202(d)	Frequency Stability	Pass
25.202(f)&25.213	Emission Masks	Pass
25.202(f)&25.213	Spurious Emissions(Conducted)	Pass
25.202(f)&25.213	Spurious Emission(Radiated)	Pass
15.207	Conducted Emission	Pass

### 3.2 Test Mode

The EUT has been tested under operating condition.

Software used to control the EUT for staying in continuous transmitting mode is programmed.

Channel 0(1626.5MHz), Channel 85(1643.5MHz) and Channel 169(1660.35MHz) are chosen for the final testing.

### 3.3 Deviations from the Test Specification

N/A

## 4. Test Result

### 4.1 Power Limit

#### 4.1.1 Standard Applicable

Section 25.204(a):

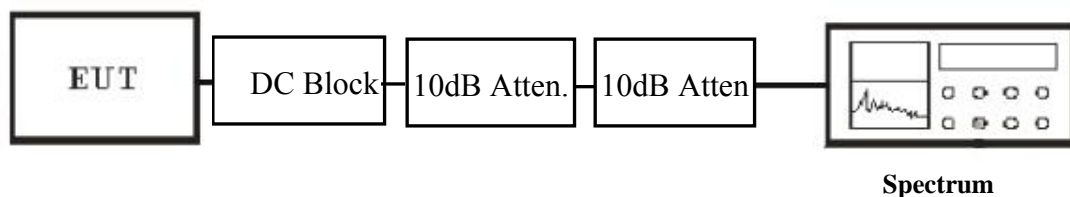
In bands shared coequally with terrestrial radio communication services, the equivalent isotropically radiated power transmitted in any direction towards the horizon by an earth station, other than an ESV, operating in frequency bands between 1 and 15 GHz, shall not exceed the following limits except as provided for in paragraph (c) of this section:

+40 dBW in any 4 kHz band for  $\Theta \leq 0^\circ$

+40 + 3  $\Theta$  dBW in any 4 kHz band for  $0^\circ < \Theta \leq 5^\circ$

where  $\Theta$  is the angle of elevation of the horizon viewed from the center of radiation of the antenna of the earth station and measured in degrees as positive above the horizontal plane and negative below it.

#### 4.1.2 Block diagram of test setup



#### 4.1.3 Measurement method

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in above figure without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.

3. Use the following spectrum analyzer settings:

Measurement mode: Peak Detector

Center Frequency = 1626.5MHz, 1643.5MHz or 1660.35MHz;

RBW=VBW=1MHz

Span = 10MHz

Sweep = auto

4. Hold on 10s, find out the max value on the screen of Spectrum.
5. Repeat above procedures until all frequencies measured were complete.

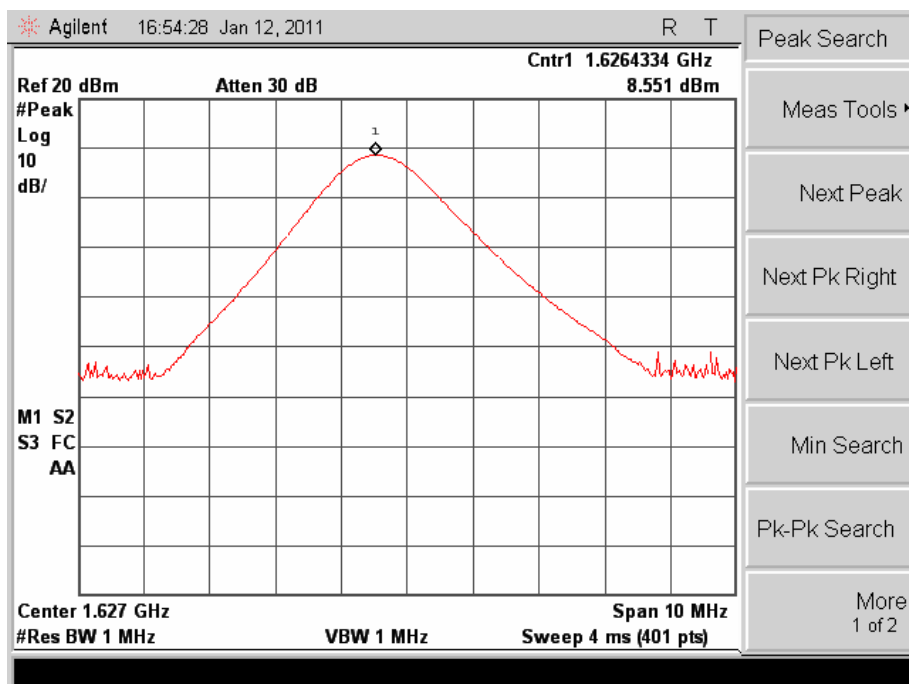
#### 4.1.4. Result

Temperature ( ) : 22~23	EUT: Oceana 400
Humidity (%RH) : 50~54	M/N: OC400
Barometric Pressure ( mbar ) : 950~1000	Operation Condition: Tx Mode
Test date: Jan 12, 2011	Test engineer: Phenix

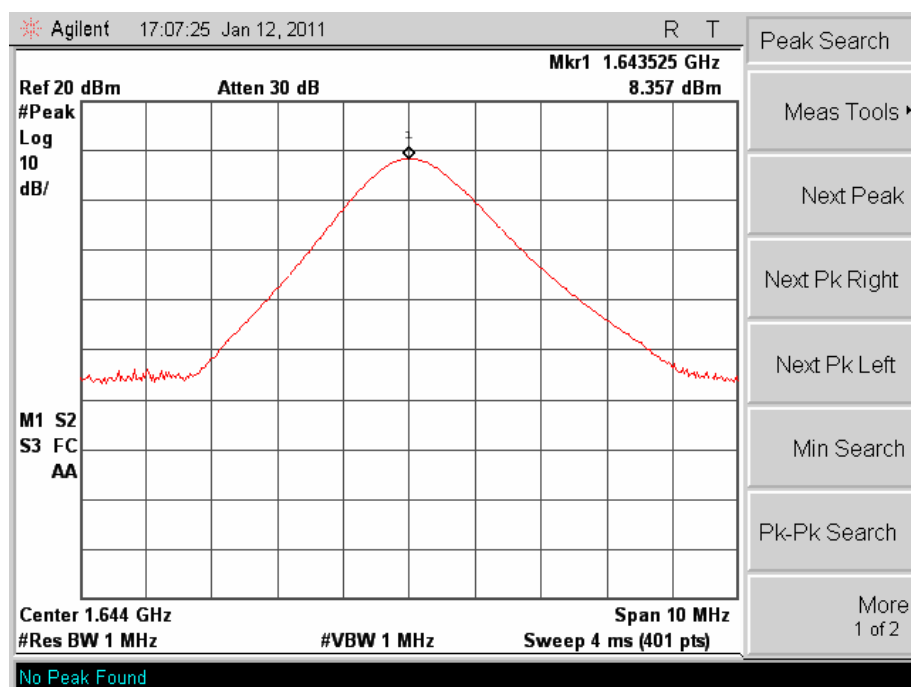
Channel No.	Frequency (MHz)	Output Power (dBm)	Peak EIRP with Antenna Gain = 6dBi (dBm)	EIRP Limit Power (dBm)	Margin (dB)
LOW (CH 0)	1626.5	29.5	35.5	70	34.5
MID (CH 85)	1643.5	29.3	35.3	70	34.7
HIG (CH 169)	1660.35	29.3	35.3	70	34.7

Test Plots:

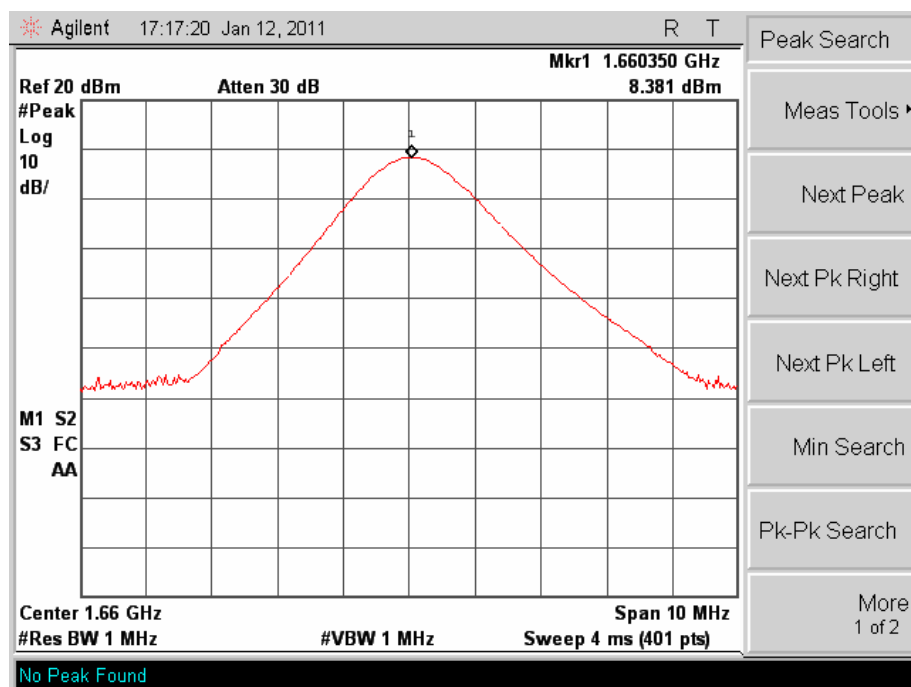
CH0:



CH85:



CH169:



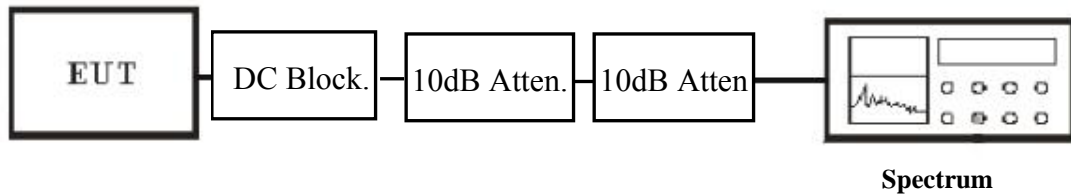


## 4.2 99% Occupied Bandwidth

### 4.2.1 Applicable Standard

Not Specified

### 4.2.2 Block diagram of test setup



### 4.2.3 Measurement method

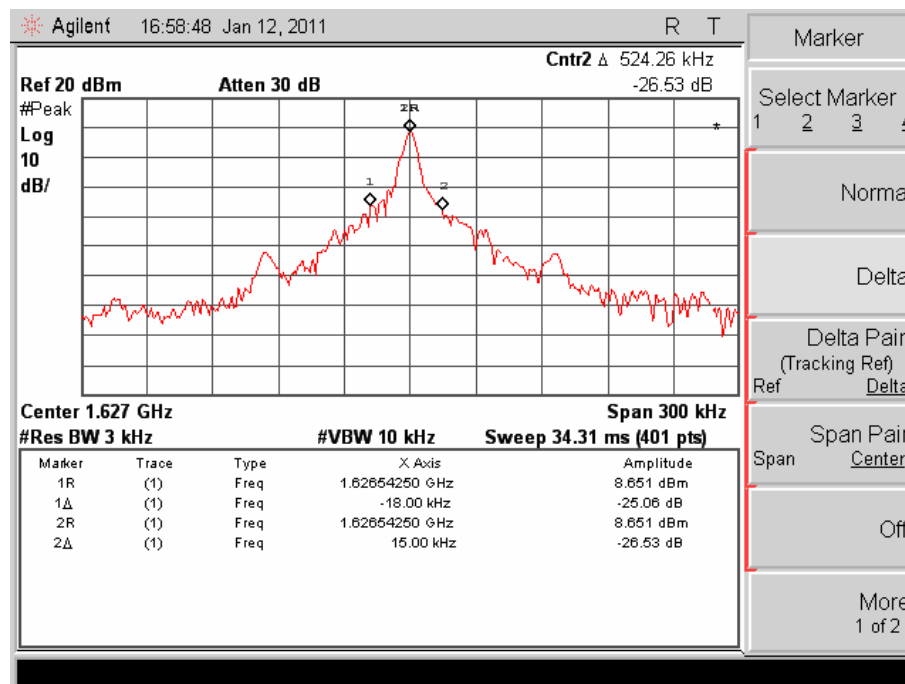
1. The transmitter output was connected to the spectrum analyzer through a shielded cable.
2. Set the spectrum analyzer as RBW=3 kHz, VBW=10 kHz, Span=300 kHz, Sweep=auto.
3. Set Detector to Peak, Trace to Max Hold.
4. Mark the peak frequency and -26dB(upper and lower) frequency.
5. Repeat above 1-4 points for the middle and highest channel of the EUT.

#### 4.2.4. Result

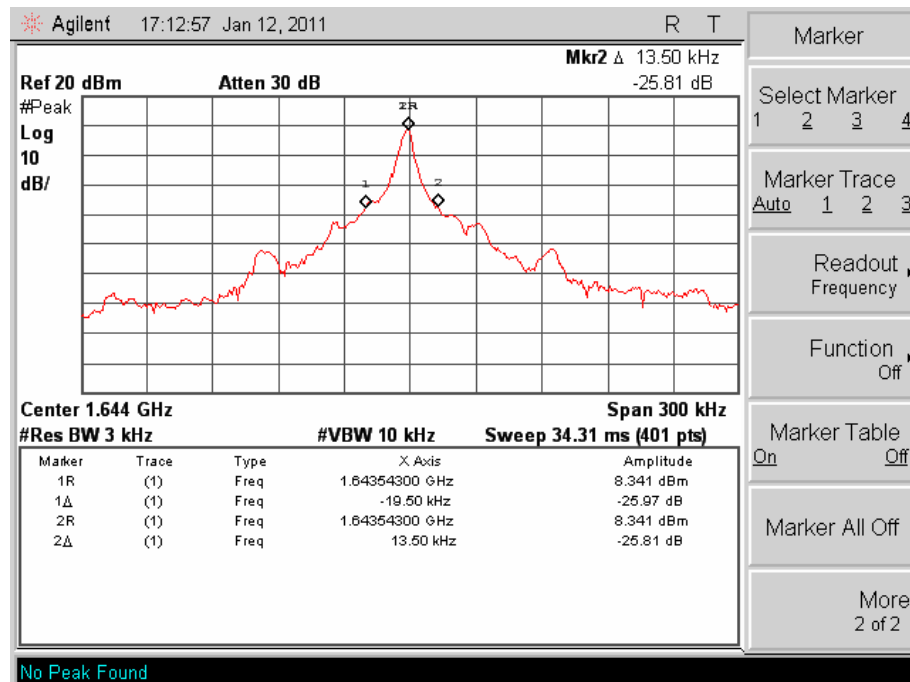
Temperature ( ) : 22~23	EUT: Oceana 400
Humidity (%RH) : 50~54	M/N: OC400
Barometric Pressure ( mbar ) : 950~1000	Operation Condition: Tx Mode
Test date: Jan 12, 2011	Test engineer: Phenix

Channel No.	Frequency (MHz)	99% Occupied Bandwidth (kHz)
0	1626.5	33
85	1643.5	33
169	1660.35	33

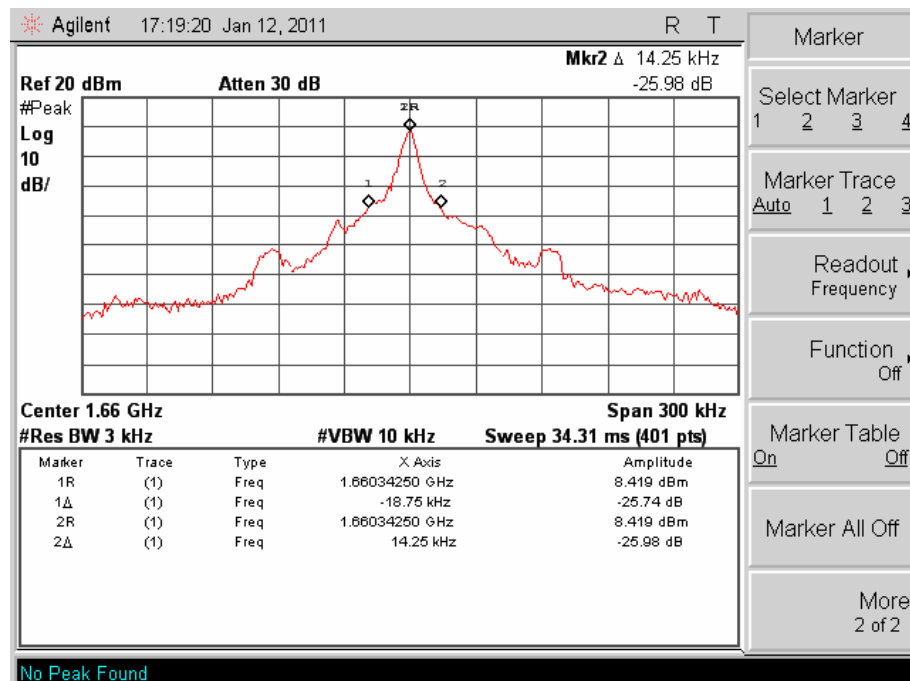
#### Test Plots: Channel LOW :



### Channel MID :



### Channel HIG :



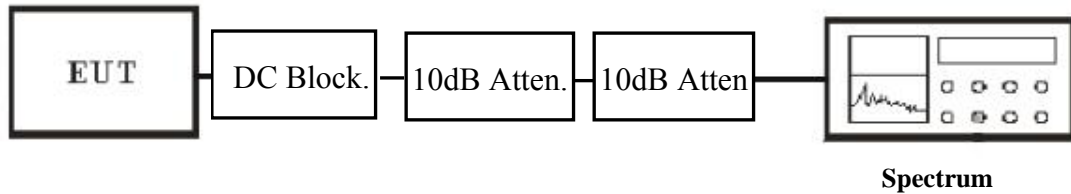
### 4.3 Frequency Stability

#### 4.3.1 Applicable Standard

Section 25.202(d):

Frequency tolerance, Earth stations. The carrier frequency of each earth station transmitter authorized in these services shall be maintained within 0.001 percent of the reference frequency.

#### 4.3.2 Block diagram of test setup



#### 4.3.3 Measurement method

- 1, Set the environmental temperature chamber to temperature of (-30 to +50 ) wait the temperature of the chamber to stabilize.
- 2, Set EUT on the TX mode of 1626.5MHz, 1643.5MHz, 1660.35MHz separate, and wait 10 minutes.
- 3, Set spectrum to RBW = 3kHz, Span = 100kHz
- 4, Read value of max. from -30 to 50 separate.

#### 4.3.4. Result

Temperature ( ) : 22~23	EUT: Oceana 400
Humidity (%RH ) : 50~54	M/N: OC400
Barometric Pressure ( mbar ) : 950~1000	Operation Condition: Tx Mode
Test date: Jan 05, 2011	Test engineer: Phenix

## Frequency Deviation:

Channel (MHz)	Voltage	Temperature								
		-30	-20	-10	0	10	20	30	40	50
CH0 (1626.5)	102V 60Hz	0Hz	0.5KHz	0.5KHz	0Hz	0.5KHz	1KHz	1KHz	1KHz	1.5KHz
	120V 60Hz	0Hz	0Hz	0Hz	0Hz	0Hz	<b>0Hz</b>	0.5KHz	1.5KHz	1.5KHz
	138V 60Hz	-0.5KHz	-0.5KHz	0Hz	0Hz	0Hz	0.5KHz	0.5KHz	1KHz	1.5KHz
CH85 (1643.5)	102V 60Hz	-1.5KHz	-1.5KHz	-1KHz	-1.5KHz	-1.5KHz	-1KHz	1.5KHz	1.5KHz	1.5KHz
	120V 60Hz	-1.5KHz	-1.5KHz	-1KHz	-1.25KHz	0Hz	<b>0Hz</b>	0Hz	0Hz	0Hz
	138V 60Hz	-2KHz	-1.5KHz	-1.5KHz	-2KHz	-1KHz	-0.5KHz	-1.5KHz	-0.5KHz	0Hz
CH169 (1660.35)	102V 60Hz	0Hz	0Hz	0Hz	-0.5KHz	0Hz	1KHz	1KHz	1KHz	1.5KHz
	120V 60Hz	0Hz	0Hz	0.5KHz	0Hz	0Hz	<b>0Hz</b>	0Hz	0.75KHz	1.5KHz
	138V 60Hz	0Hz	0Hz	-0.5KHz	-0.5KHz	0Hz	0.5KHz	1KHz	1KHz	1KHz

Maximum frequency drift	Limit	Result
-2KHz@1643.5MHz	$1643.5\text{fMHz} \times 0.001\% =$ $\pm 16.435\text{KHz}$	PASS

#### 4.4 Emission Masks

##### 4.4.1 Applicable Standard

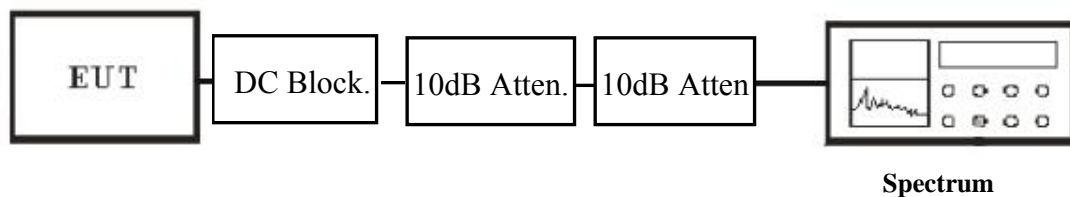
Section 25.202(f):

Emission limitations.

The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the following schedule:

- (1) In any 4 kHz band, the center frequency of which is removed from the assigned frequency by more than 50 percent up to and including 100 percent of the authorized bandwidth: 25 dB;
- (2) In any 4 kHz band, the center frequency of which is removed from the assigned frequency by more than 100 percent up to and including 250 percent of the authorized bandwidth: 35 dB;
- (3) In any 4 kHz band, the center frequency of which is removed from the assigned frequency by more than 250 percent of the authorized bandwidth: An amount equal to 43 dB plus 10 times the logarithm (to the base 10) of the transmitter power in watts;
- (4) In any event, when an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in paragraphs (f) (1), (2) and (3) of this section.

##### 4.4.2 Block diagram of test setup



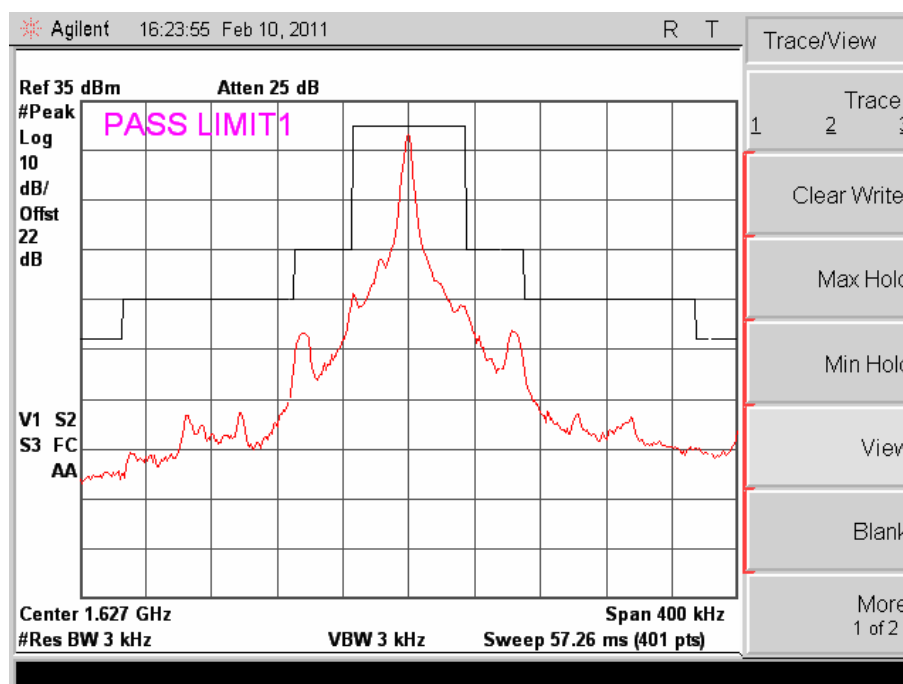
##### 4.4.3 Measurement method

1. The transmitter set to the lowest channel.
2. The transmitter output was connected to the spectrum analyzer via a cable, DC block and two 10dB attenuators. The all losses are used as the offset of the spectrum analyzer. A correction factor of 1.25dB was added to the reference level offset to account for the RBW being 3kHz not 4kHz as defined in 25.202(f).
3. Set RBW=3KHz , VBW=3KHz, span = 0.4MHz, Center= channel frequency. The detector set to peak and max hold this trace.
4. Set the Mask limit, and turn on it. Capture the plot.
5. The transmitter set to the middle and highest channel and repeat 2~4.

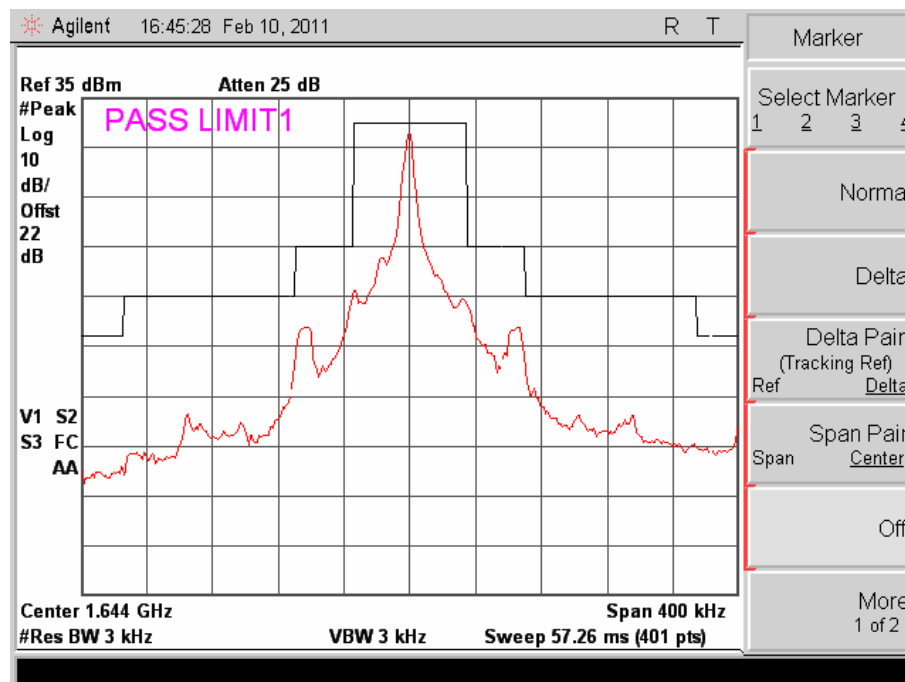
#### 4.4.4. Result

Temperature ( ) : 22~23	EUT: Oceana 400
Humidity (%RH) : 50~54	M/N: OC400
Barometric Pressure ( mbar ) : 950~1000	Operation Condition: Tx Mode
Test date: Feb 10, 2011	Test engineer: Phenix

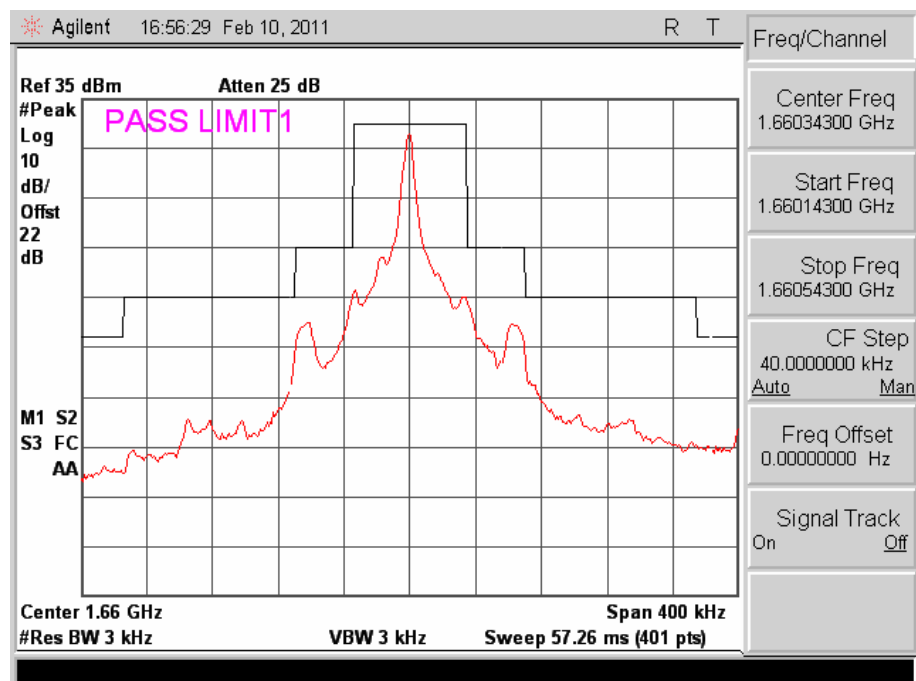
**Plot:**  
**Channel LOW :**



### Channel MID :



### Channel HIG :





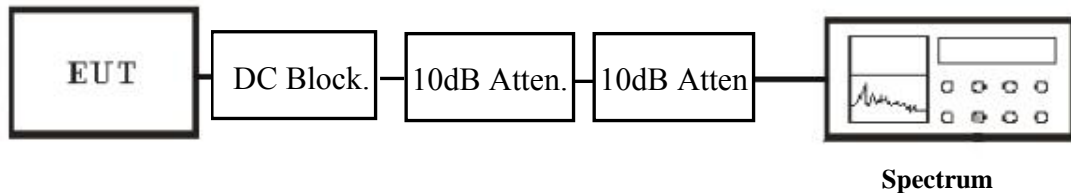
## 4.5 Spurious Emissions (Conducted)

### 4.5.1 Applicable Standard

Section 25.202(f): at least  $43+10\log(P)$  or -13dBm

In any event, when an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in paragraphs (f) (1), (2) and (3) of this section.

### 4.5.2 Block diagram of test setup



### 4.5.3 Measurement method

1. The transmitter output was connected to the spectrum analyzer via a shielded cable and two 10dB attenuators and DC block.
2. Set the spectrum analyzer as RBW=100 kHz, VBW=300 kHz, Sweep=auto.
3. Set Detector to Peak, Trace to Max Hold.
4. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. The plot of result is show on the screen of spectrum analyzer.
5. Repeat above 1-4 points for the middle and highest channel of the EUT.

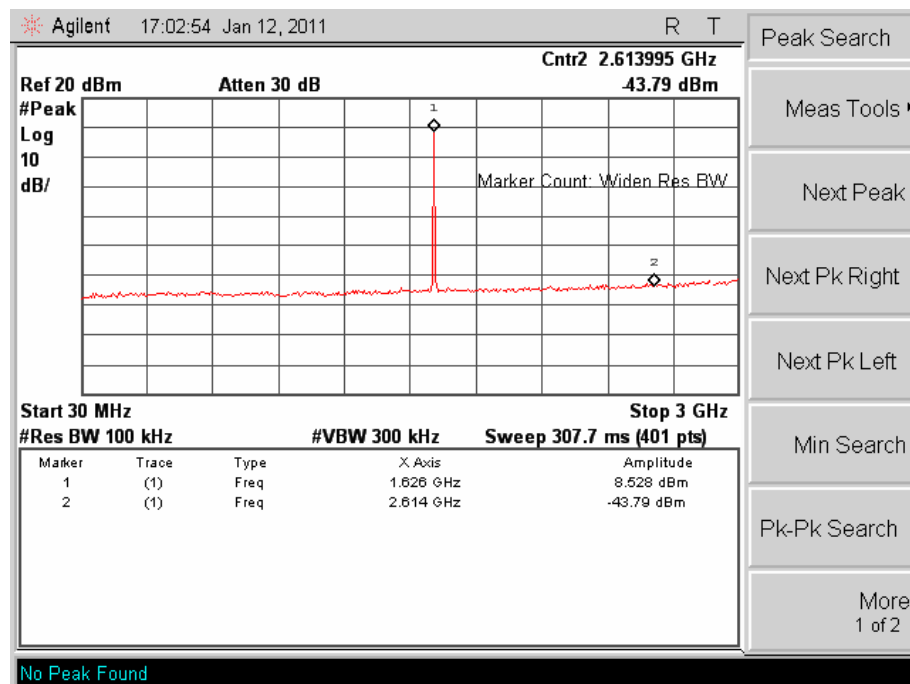
#### 4.5.4. Result

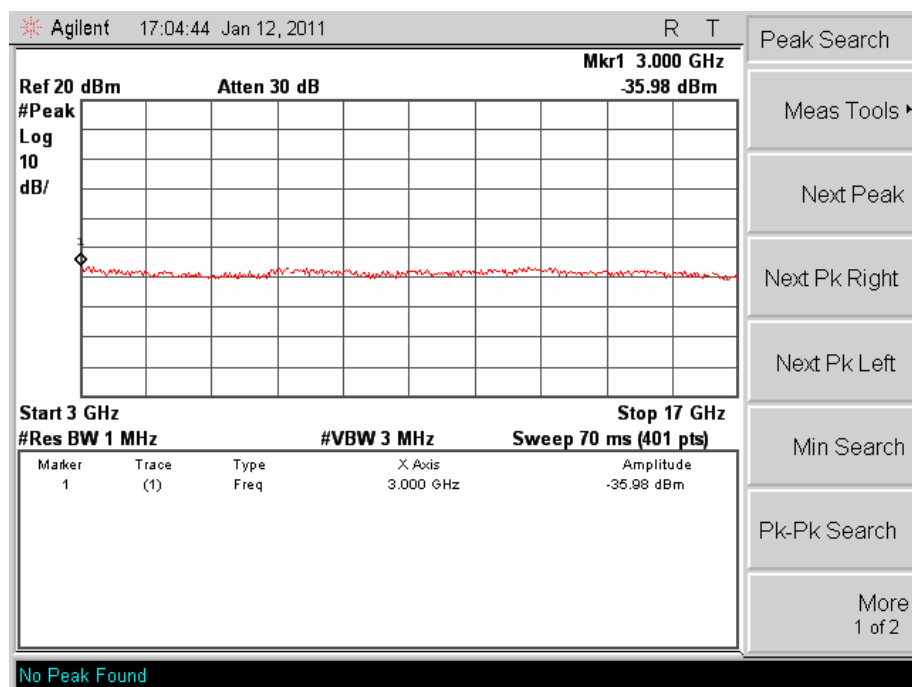
Temperature ( ) : 22~23	EUT: Oceana 400
Humidity (%RH) : 50~54	M/N: OC400
Barometric Pressure ( mbar ) : 950~1000	Operation Condition: Tx Mode
Test date: Jan 12, 2011	Test engineer: Phenix

#### CH 0:

Frequency (MHz)	Reading Value (dBm)	Factor of attenuators and DC block (dB)	Result (dBm)	Limits (dBm)	Margin (dB)
2614	-43.8	21	-22.8	-13	9.8
3000	-36.0	21	-15.0	-13	2.0

#### Plots:

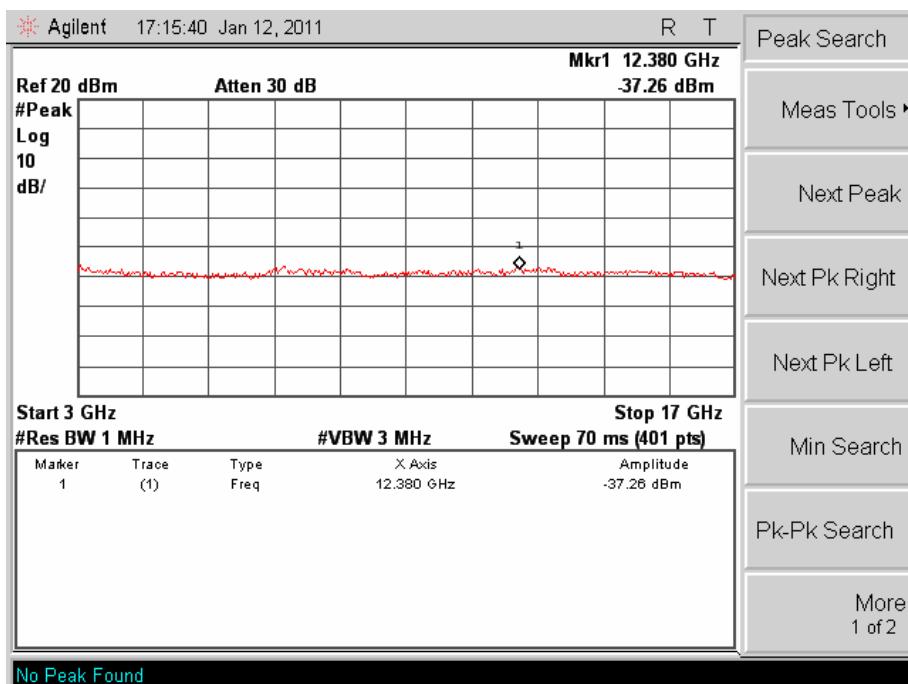
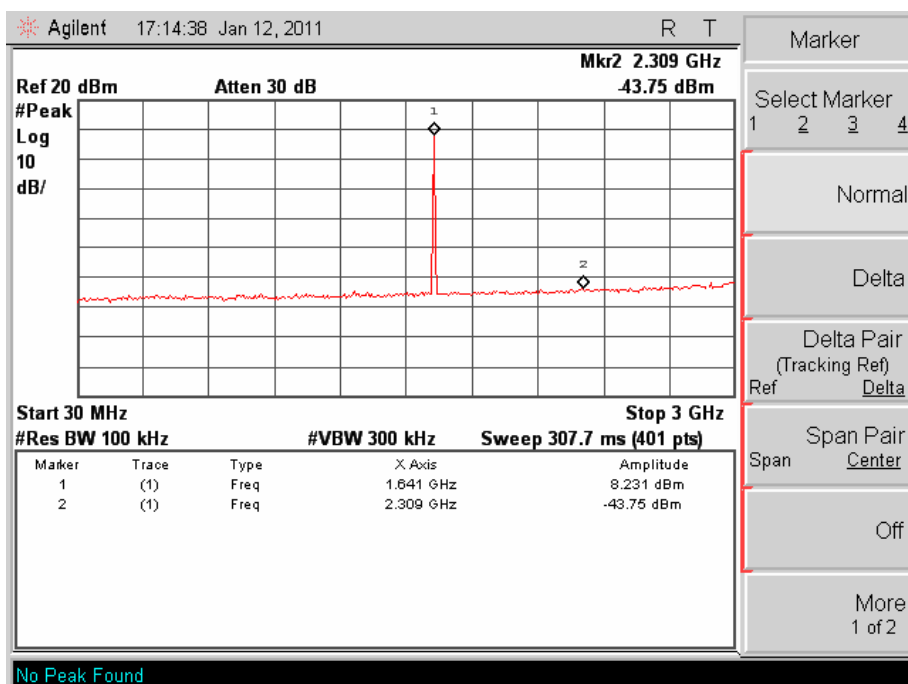




### CH 85:

Frequency (MHz)	Reading Value (dBm)	Factor of attenuators and DC block (dB)	Result (dBm)	Limits (dBm)	Margin (dB)
2309	-43.8	21	-22.8	-13	9.8
12380	-37.3	21	-16.3	-13	3.3

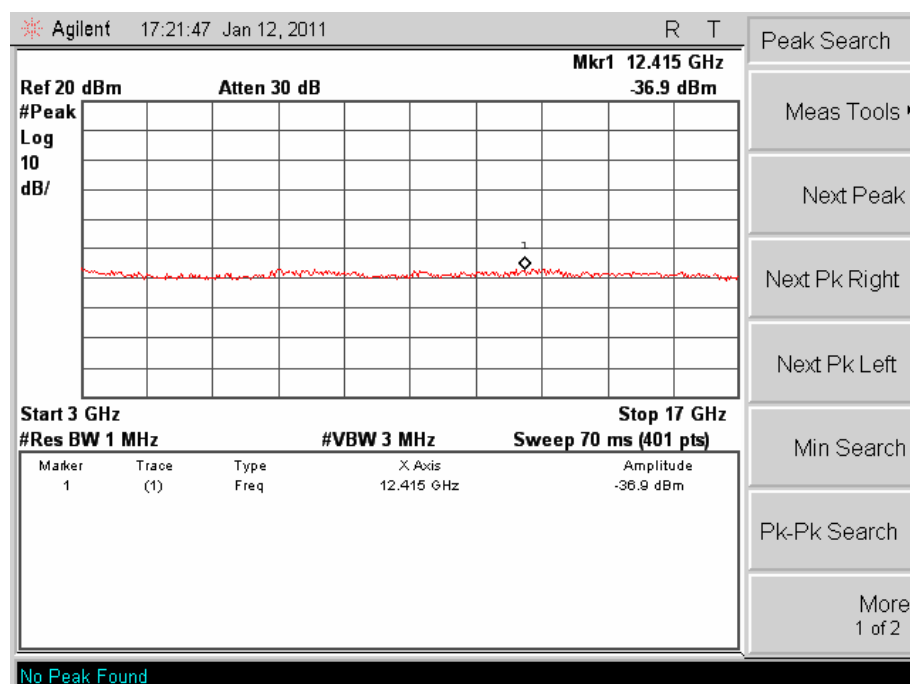
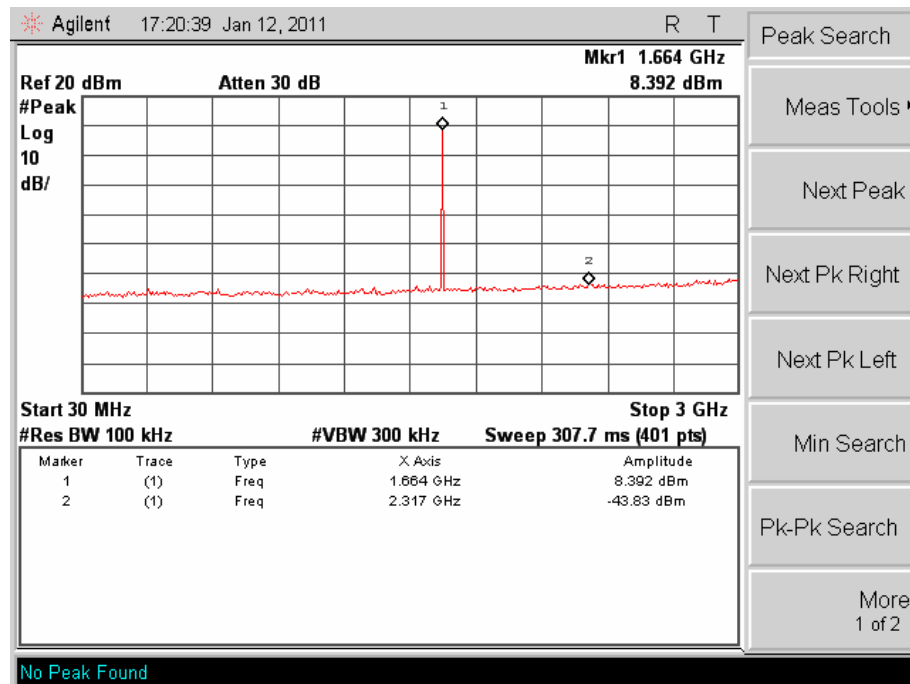
## Plots:



### CH 169:

Frequency (MHz)	Reading Value (dBm)	Factor of attenuators and DC block (dB)	Result (dBm)	Limits (dBm)	Margin (dB)
2317	-43.8	21	-22.8	-13	9.8
12415	-36.9	21	-15.9	-13	2.9

### Plots:



## 4.6 Spurious Emission(Radiated)

### 4.6.1 Applicable Standard

Section 25.202(f)(3):

The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the following schedule: In any 4 kHz band, the center frequency of which is removed from the assigned frequency by more than 250 percent of the authorized bandwidth: An amount equal to 43 dB plus 10 times the logarithm (to the base 10) of the transmitter power in watts;

In any event, when an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in paragraphs (f) (1), (2) and (3) of this section.

### 4.6.2 Block diagram of test setup

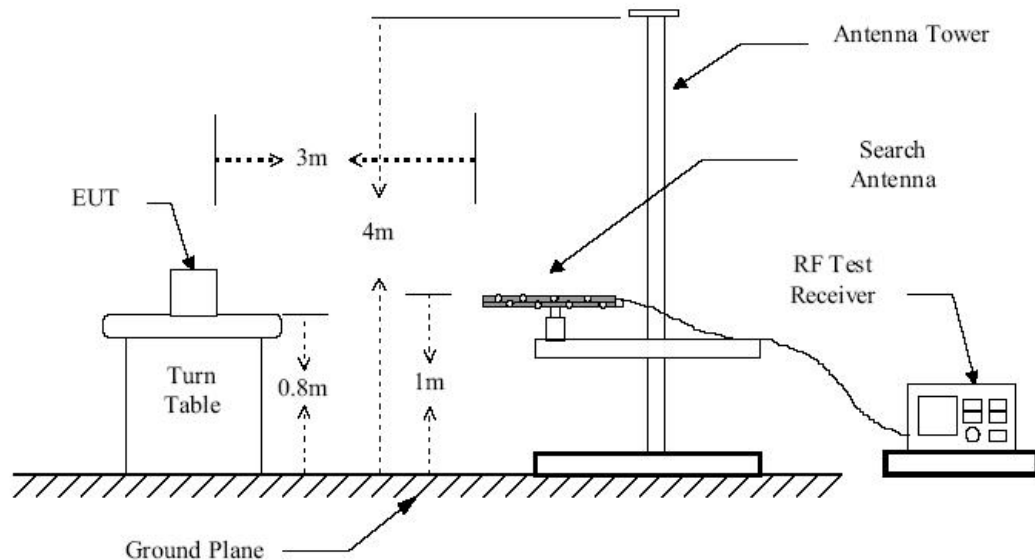


Figure 1 : Frequencies measured below 1 GHz configuration

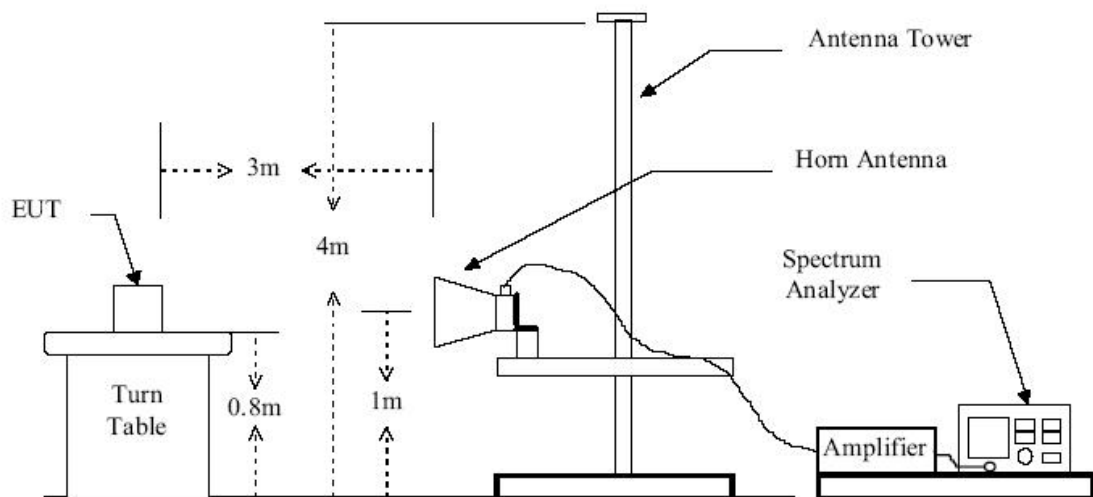


Figure 2 : Frequencies measured above 1 GHz configuration

#### 4.6.3 Measurement method

1. Configure the EUT according to ANSI C63.4 (2003) and ANSI/TIA-603-C-2004.
2. The EUT was placed on the top of the turntable 0.8 meter above ground.
3. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
4. Power on the EUT and all the supporting units.
5. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
6. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emission field strength of both horizontal and vertical polarization.
7. For each suspected emission, the antenna tower was scanned (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
8. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.

## 4.6.4. Result

**PASS**

Temperature ( ): 22~23	EUT: Oceana 400
Humidity (%RH ): 50~54	M/N: OC400
Barometric Pressure ( mbar ): 950~1000	Operation Condition: Tx Mode
Test date: Jan 13, 2011	Test engineer: Phenix

**CH 0:**

Frequency (MHz)	RF Level @ 3m (dBuV/m)	Detector	Antenna Polarization (H/V)	EIRP (dBm)	Limit (dBm)	Margin (dB)
64.990	30.7	Peak	H	-64.53	-13	51.53
144.689	35.1	Peak	H	-60.13	-13	47.13
169.960	35.4	Peak	H	-59.83	-13	46.83
191.343	35.6	Peak	H	-59.63	-13	46.63
269.099	36.0	Peak	H	-59.23	-13	46.23
51.383	37.5	Peak	V	-57.73	-13	44.73
64.990	39.1	Peak	V	-56.13	-13	43.13
133.026	40.1	Peak	V	-55.13	-13	42.13
169.960	38.6	Peak	V	-56.63	-13	43.63
269.099	34.2	Peak	V	-61.03	-13	48.03
1192.385	49.6	Peak	H	-45.63	-13	32.63
1448.897	49.2	Peak	H	-46.03	-13	33.03
6963.917	65.1	Peak	H	-30.13	-13	17.13
1192.385	51.6	Peak	V	-43.63	-13	30.63
1448.897	45.1	Peak	V	-50.13	-13	37.13
6963.917	65.0	Peak	V	-30.23	-13	17.23

All other emissions are more than 20 dB below the limit.



## Test Plots:

2011-01-13 17:46:23

## RADIATED EMISSION

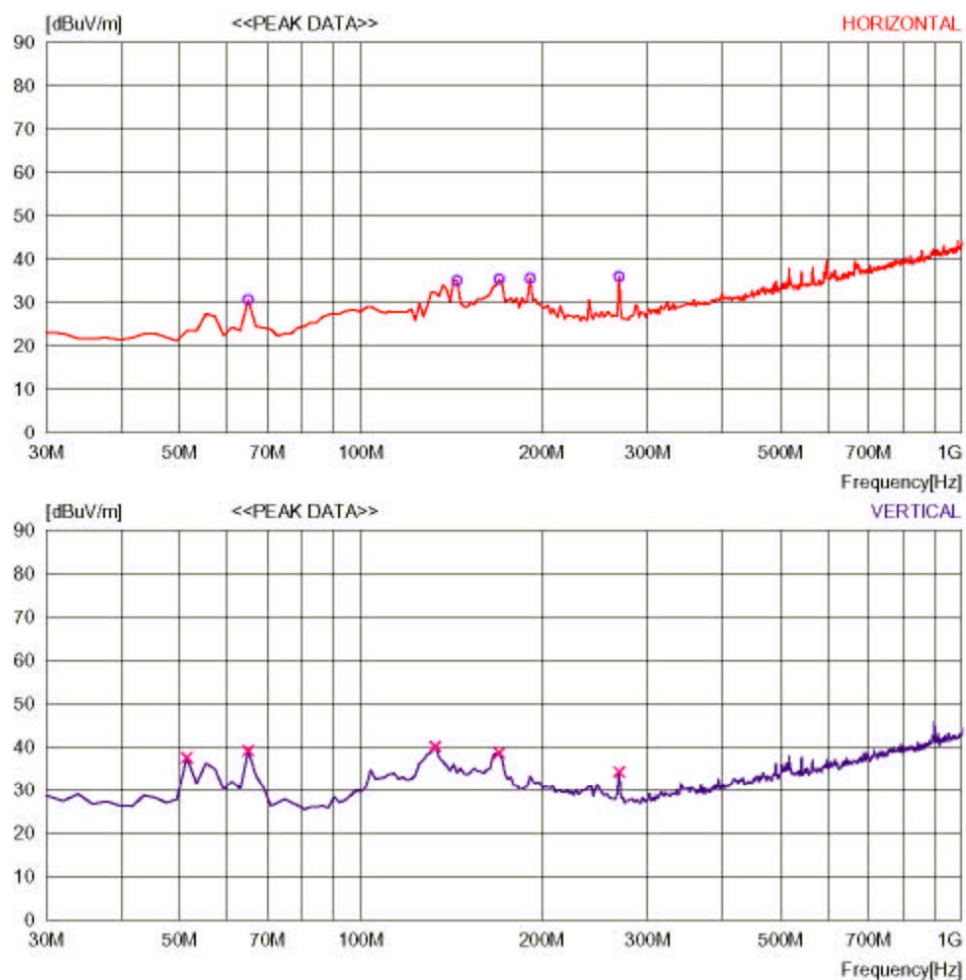
Date : 2011-01-13 17:46:15

Trade Name : Beam  
Model Name : OC400  
Product Name : Oceana 400  
Test Condition : TX mode, CH0

Document No. :  
Power Supply : AC 120V 60Hz  
Temp/Humi : 23 Deg/55% RH  
Operator : Phenix

Memo :

LIMIT :



2011-01-14 10:01:05

## RADIATED EMISSION

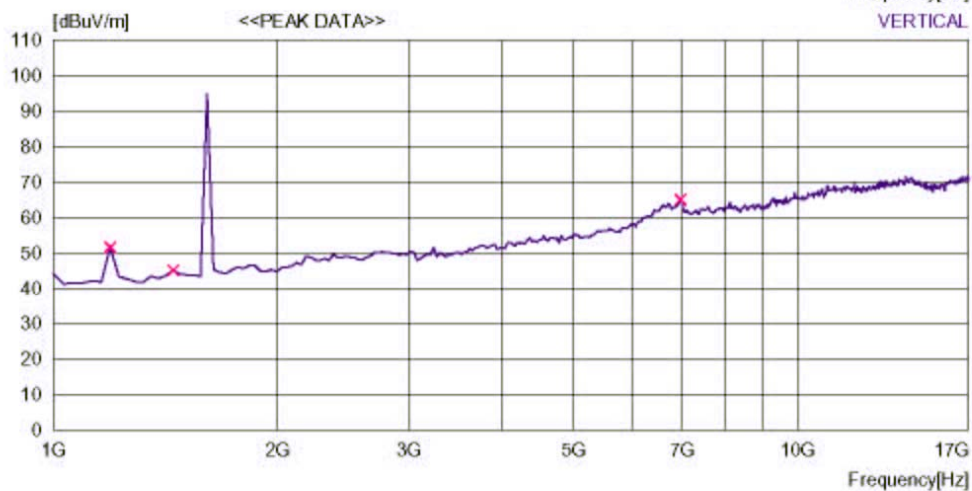
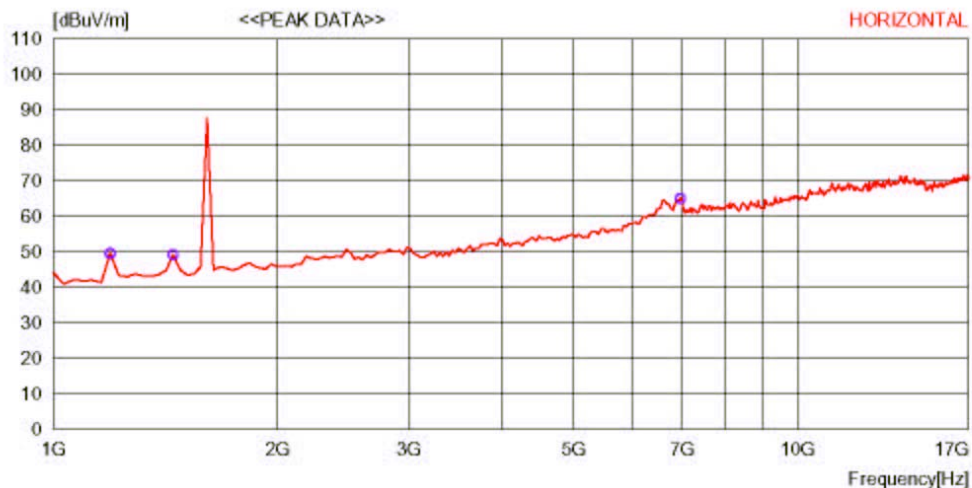
Date : 2011-01-14 10:00:58

Trade Name : Beam  
Model Name : OC400  
Product Name : Oceana 400  
Test Condition : TX mode, CH0

Document No. :  
Power Supply : AC 120V/60Hz  
Temp/Humi : 27/55RH%  
Operator : Phenix

Memo :

LIMIT :



**CH 85:**

Frequency (MHz)	RF Level @ 3m (dBuV/m)	Detector	Antenna Polarization (H/V)	EIRP (dBm)	Limit (dBm)	Margin (dB)
64.990	29.8	Peak	H	-65.43	-13	52.43
142.746	37.4	Peak	H	-57.83	-13	44.83
169.960	36.3	Peak	H	-58.93	-13	45.93
191.343	34.9	Peak	H	-60.33	-13	47.33
269.099	37.4	Peak	H	-57.83	-13	44.83
55.271	37.4	Peak	V	-57.83	-13	44.83
64.990	37.9	Peak	V	-57.33	-13	44.33
131.082	39.9	Peak	V	-55.33	-13	42.33
169.960	39.0	Peak	V	-56.23	-13	43.23
269.099	36.1	Peak	V	-59.13	-13	46.13
1192.385	48.5	Peak	H	-46.73	-13	33.73
1448.897	48.4	Peak	H	-46.83	-13	33.83
6995.981	65.4	Peak	H	-29.83	-13	16.83
1192.385	49.1	Peak	V	-46.13	-13	33.13
1448.897	48.7	Peak	V	-46.53	-13	33.53
6995.981	65.9	Peak	V	-29.33	-13	16.33

All other emissions are more than 20 dB below the limit.

## Test Plots:

2011-01-13 17:53:55

## RADIATED EMISSION

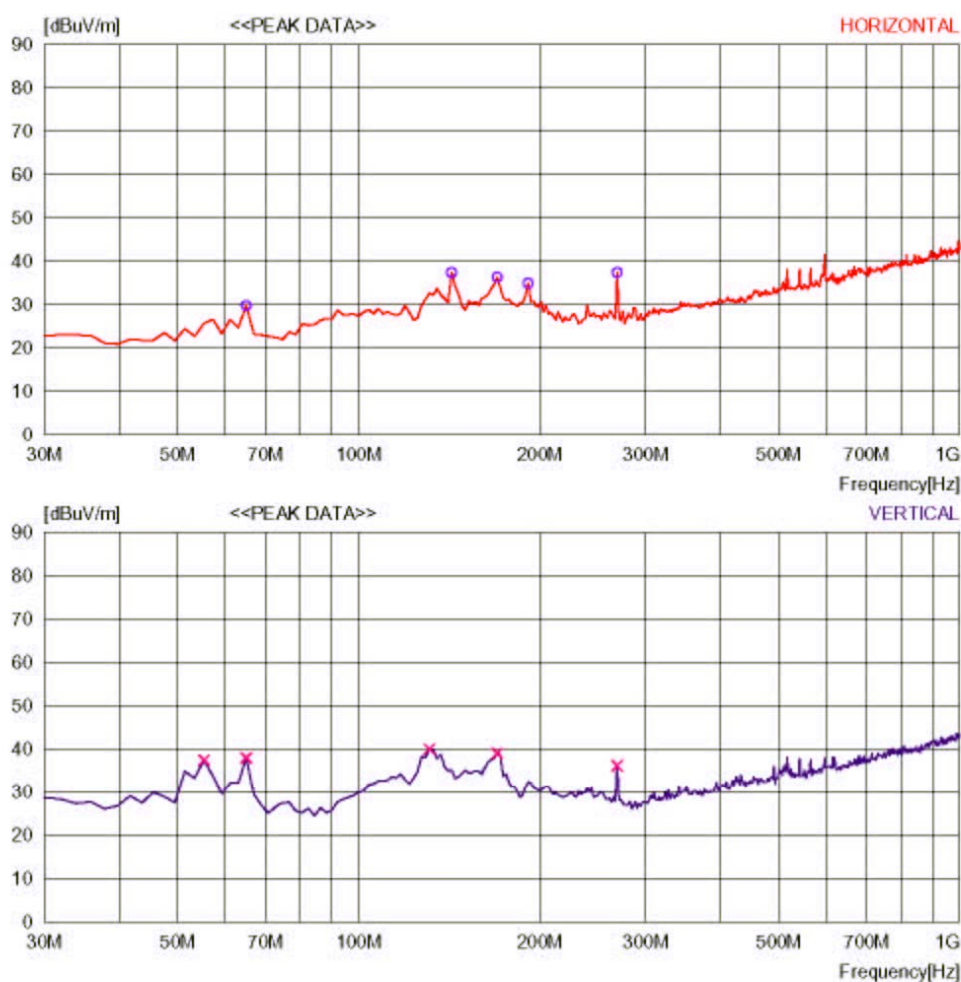
Date : 2011-01-13 17:53:46

Trade Name : Beam  
Model Name : OC400  
Product Name : Oceana 400  
Test Condition : TX mode, CH85

Document No. :  
Power Supply : AC 120V 60Hz  
Temp/Humi : 23 Deg/55% RH  
Operator : Phenix

Memo :

LIMIT :



2011-01-14 09:22:26

## RADIATED EMISSION

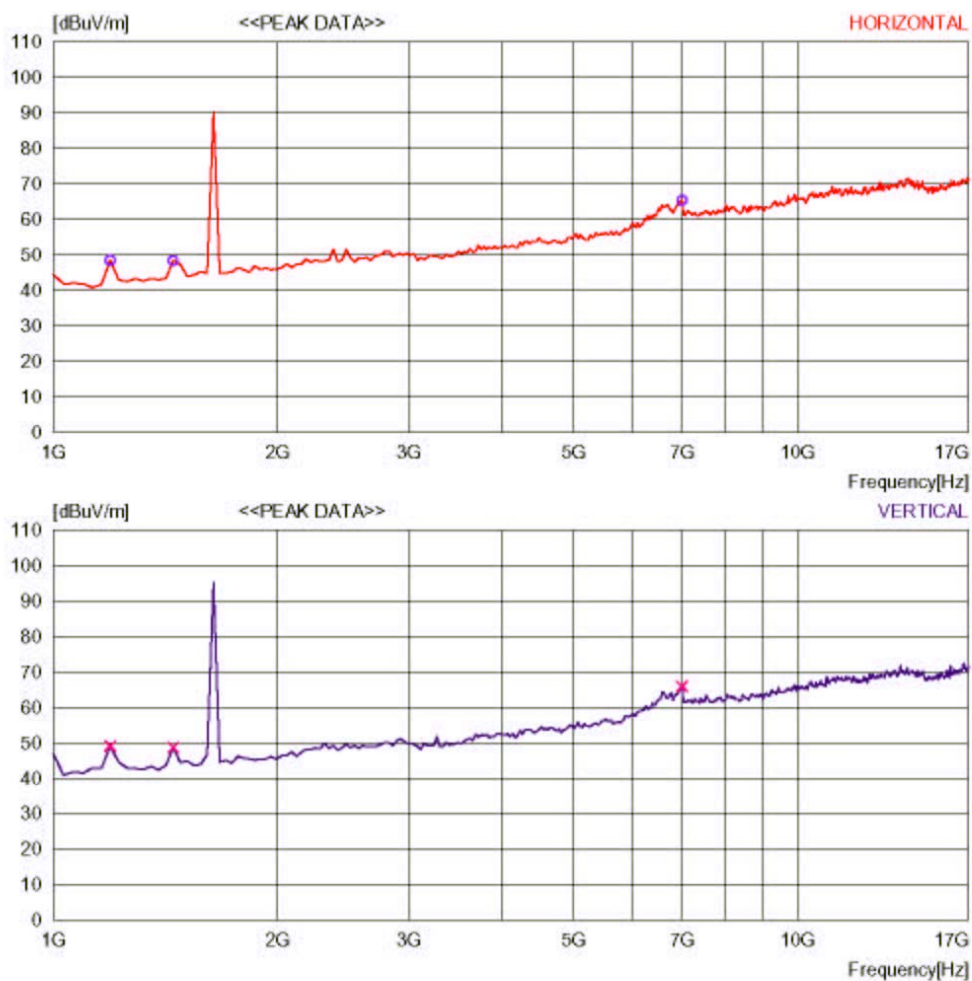
Date : 2011-01-14 09:22:17

Trade Name : Beam  
Model Name : OC400  
Product Name : Oceana 400  
Test Condition : TX mode, CH85

Document No. :  
Power Supply : AC 120V/60Hz  
Temp/Humi : 27/55RH%  
Operator : Phenix

Memo :

LIMIT :



**CH 169:**

Frequency (MHz)	RF Level @ 3m (dBuV/m)	Detector	Antenna Polarization (H/V)	EIRP (dBm)	Limit (dBm)	Margin (dB)
64.990	31.1	Peak	H	-64.13	-13	51.13
142.746	40.1	Peak	H	-55.13	-13	42.13
168.016	34.7	Peak	H	-60.53	-13	47.53
191.343	35.5	Peak	H	-59.73	-13	46.73
269.099	35.6	Peak	H	-59.63	-13	46.63
55.271	35.9	Peak	V	-59.33	-13	46.33
64.990	37.5	Peak	V	-57.73	-13	44.73
133.026	41.1	Peak	V	-54.13	-13	41.13
168.016	38.9	Peak	V	-56.33	-13	43.33
269.099	35.4	Peak	V	-59.83	-13	46.83
1192.385	49.4	Peak	H	-45.83	-13	32.83
1448.897	53.1	Peak	H	-42.13	-13	29.13
6995.981	66.1	Peak	H	-29.13	-13	16.13
1192.385	48.5	Peak	V	-46.73	-13	33.73
1513.025	45.7	Peak	V	-49.53	-13	36.53
6963.917	65.8	Peak	V	-29.43	-13	16.43

All other emissions are more than 20 dB below the limit.

## Test Plots:

2011-01-13 18:01:28

## RADIATED EMISSION

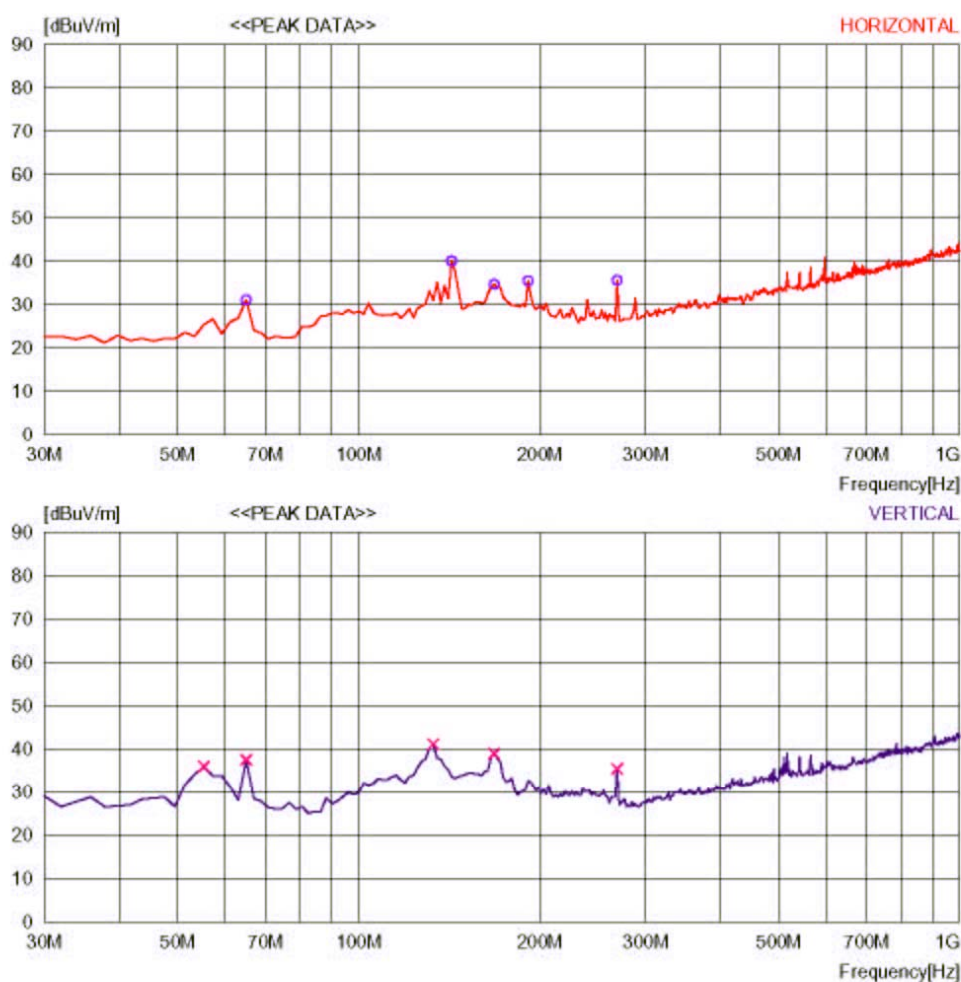
Date : 2011-01-13 18:01:16

Trade Name : Beam  
Model Name : OC400  
Product Name : Oceana 400  
Test Condition : TX mode, CH169

Document No. :  
Power Supply : AC 120V 60Hz  
Temp/Humi : 23 Deg/55% RH  
Operator : Phenix

Memo :

LIMIT :





2011-01-14 09:31:45

## RADIATED EMISSION

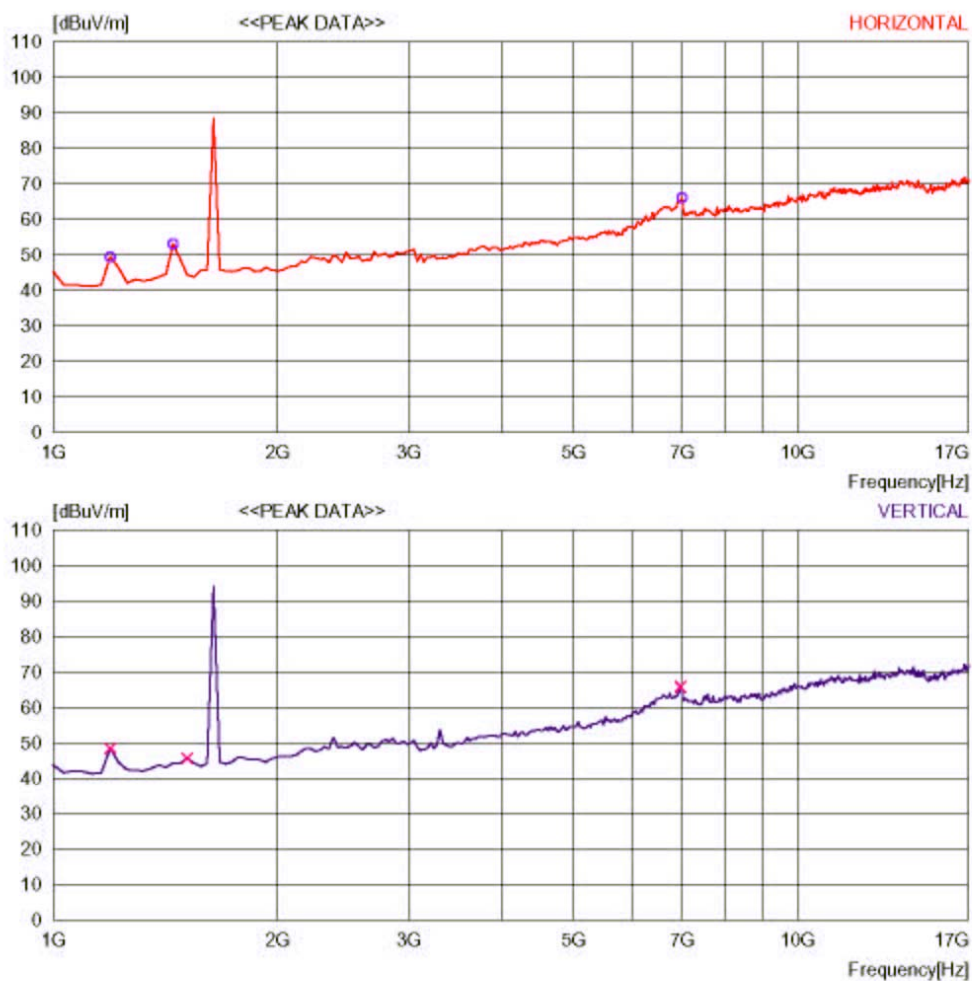
Date : 2011-01-14 09:31:03

Trade Name : Beam  
Model Name : OC400  
Product Name : Oceana 400  
Test Condition : TX mode, CH169

Document No. :  
Power Supply : AC 120V/60Hz  
Temp/Humi : 27/55RH%  
Operator : Phenix

Memo :

LIMIT :



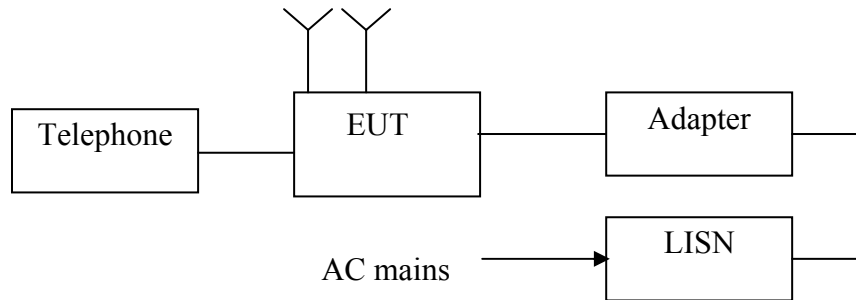


## 4.7 Conducted Emission (mains)

### 4.7.1 Test Summary

Test Room	: Shielded Room
Power Source	: AC 120V / 60Hz
Standards:	: FCC Part15 B : 2009
EUT Type	: Table Top
EUT configuration	: EUT's highest possible emission level

### 4.7.2 Block diagram of test setup



### 4.7.3 Measurement method

The EUT along with its peripherals were placed on a 1.0m (W) x 1.5m(L) and 0.8m in height wooden table and the EUT was adjusted to maintain a 0.4m space from a vertical reference plane. The EUT was connected to power mains through a Artificial Mains Network(AMN), which provided 50 ohm coupling impedance for measuring instrument and the chassis ground was bounded to the horizontal ground plane of shielded room.

The excess power cable between the EUT and the AMN was bundled. All connecting cables of EUT and peripherals were moved to find the maximum emission.

#### 4.7.4. Result

**PASS**

2011-01-26 11:50:10

### Conducted Emission

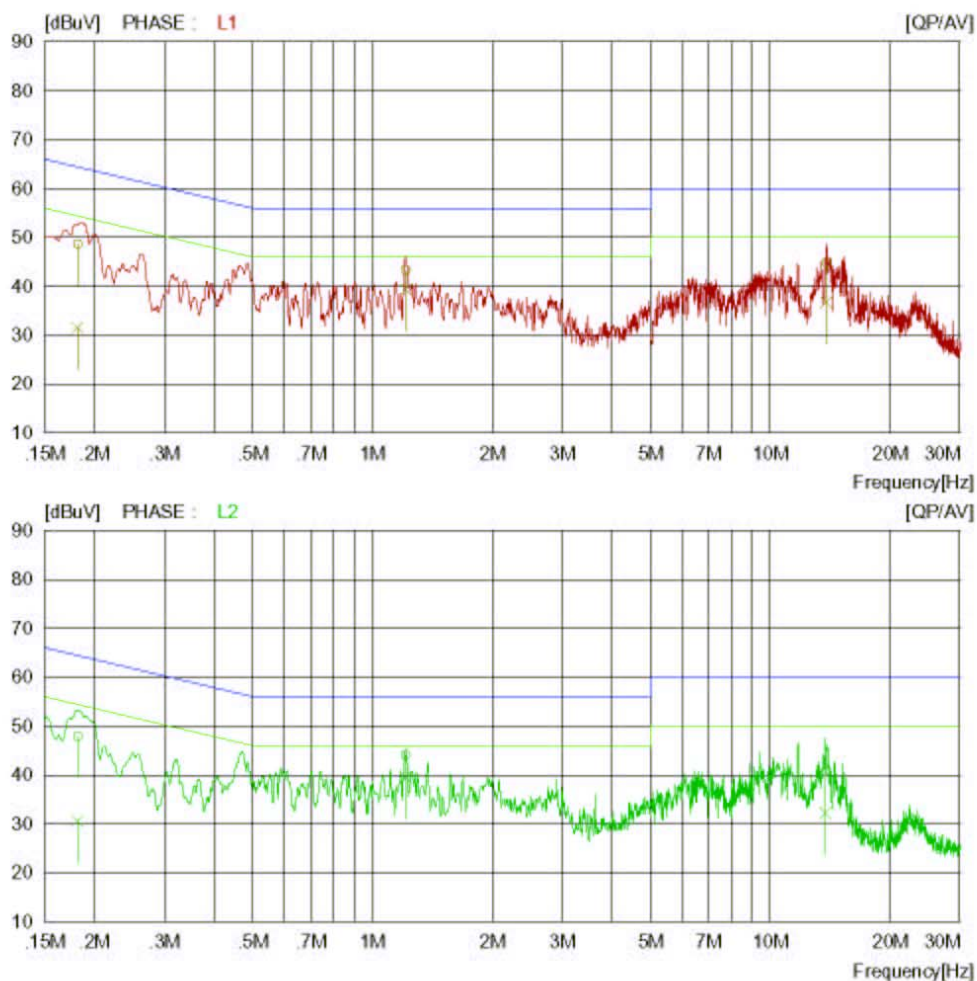
TDK South China EMC Centre  
Date : 2011-01-26 11:50:06

Company Name : Beam  
Model Name : OC400  
Product Name : Oceana 400  
Test condition : Normal

Document No. :  
Power Supply : AC 120V 60Hz  
Temp/Humi : 25deg / 52%RH  
Operator : Phenix

Memo :

LIMIT : FCC Part 15 B QP  
FCC Part 15 B AV



TDK South China EMC Centre Tell:0769-8564-4678 Fax:0769-8564-4499

2011-01-26 11:50:11

## Conducted Emission

TDK South China EMC Centre  
Date : 2011-01-26 11:50:06

Company Name : Beam  
Model Name : OC400  
Product Name : Oceana 400  
Test condition : Normal

Document No. :  
Power Supply : AC 120V 60Hz  
Temp/Humi : 25deg / 52%RH  
Operator : Phenix

Memo :

LIMIT : FCC Part 15 B QP  
FCC Part 15 B AV

NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.18200	38.5	21.3	10.1	48.6	31.4	64.4	54.4	15.8	23.0	L1
2	1.21500	33.1	29.2	10.1	43.2	39.3	56.0	46.0	12.8	6.7	L1
3	13.85000	34.5	26.3	10.3	44.8	36.6	60.0	50.0	15.2	13.4	L1
4	0.18200	37.8	20.5	10.1	47.9	30.6	64.4	54.4	16.5	23.8	L2
5	1.21500	33.9	29.3	10.1	44.0	39.4	56.0	46.0	12.0	6.6	L2
6	13.75800	30.5	21.9	10.3	40.8	32.2	60.0	50.0	19.2	17.9	L2

TDK South China EMC Centre    Tell:0769-8564-4678    Fax:0769-8564-4499

## 5. FCC ID Label

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions : (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

### Mark Location:



## 6. Test Setup

### 6.1 Ancillary and Accessory Equipment Used

No.	Description	Specification	Quantity
1.	PC	DELL, M/N:OPTIPLEX 380, S/N: FDXQW2X	1
2.	Monitor	SHARP/AQUOS, M/N:LCD-19A35-BK, S/N:806915210	1
3.	Keyboard	Logitech, M/N:Y-BP62a, P/N: 820-000260	1
4.	Mouse	Logitech, M/N:M-UAS144, P/N: 810-00728	1
5.	Telephone	Panasonic, Model:KX-T2371MXW, S/N:9ABKB073080	1

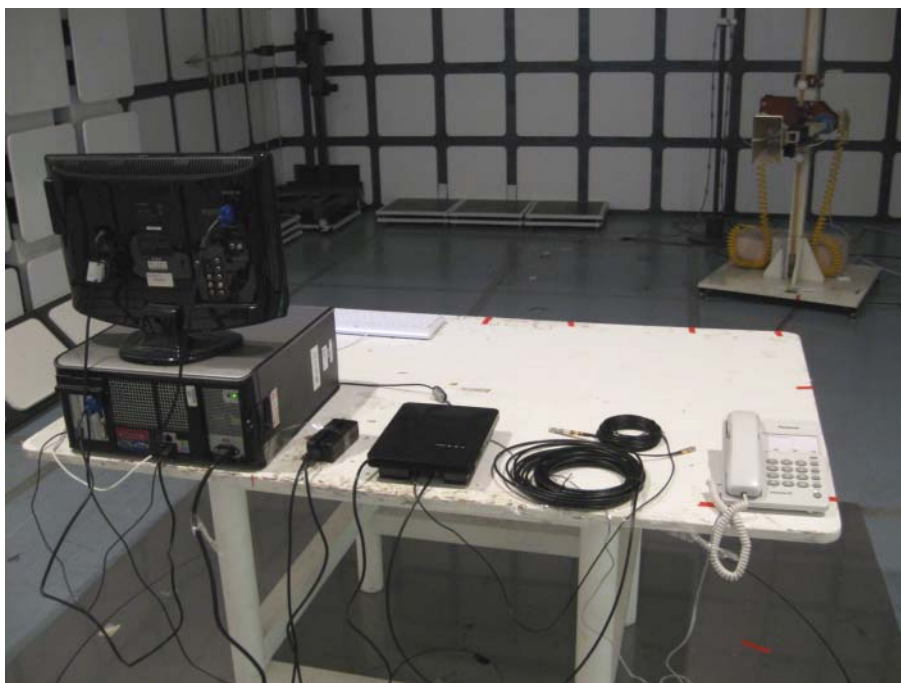
## 6.2 Photographs of the Test Configuration

### 6.2.1 Radiated emission

Below 1GHz:



Above 1GHz:



## 6.2.2 Conducted emission





### 6.3 Photographs of the EUT



Enclosure of EUT



Enclosure of EUT





Internal Photo



Photo of adapter



Photo of adapter

## 7. Equipment List

No.	Equipment	Manufacturer	Model	Serial No.	Calibration Date
1	Precision Biconical Antenna	TDK Co.	PBA-2030	090500	2010-09-18
2	Precision Log Periodic Antenna	TDK Co.	PLP-3003	061001	2010-09-18
3	Hybrid Log Periodic Antenna	TDK	HLP-3003C	130174	2010-09-18
4	Horn antenna	TDK	HRN-0118	130186	2010-04-07
5	Attenuator 6 dB	Agilent	8491B	MY39260147	2010-09-18
6	Preamplifier	TDK Sonoma	310	242803	2010-04-07
7	Preamplifier	ELENA	EAU-3718 GXA	A070701	2010-04-07
8	EMI Receiver	Rohde & Schwarz	ESIB26	100234	2010-04-07
9	EMI Receiver	Rohde & Schwarz	ESCS30	100350	2010-04-07
10	Spectrum Analyzer	Agilent	E4403B	MY44210199	2010-04-07
11	Art. Mains Network	EMCO	3816/2	00044921	2010-04-07
12	Transient Limiter(10 dB)	Agilent	11947A	3107A03736	2010-04-07
13	Personal Computer	HP	DX2000MT	MXD4250FZM	N/A
14	Personal Computer	HP	DX2000MT	MXD4130B2N	N/A
15	Semi-Anechoic Chamber	TDK Co.	N/A	N/A	2010-04-07
16	Shielded Room	TDK Co.	N/A	N/A	N/A
17	Loop Antenna	EMCO	6502	9107-2440	2010-04-07
18	DC Block	Mini-Circuits	BLK-18-S+	31035	2010-10-16
19	10dB Attenuator	Mini-Circuits	BW-S10W2 +	1014	2010-10-16
20	10dB Attenuator	Weinschel	54A-10	T8872	2010-10-16

## 8. Test Uncertainty

Test	Range	Confidence Level	Calculated Uncertainty
Radiated emission(3m)	30-1000MHz	95%	4.3dB
Conducted emission	0.15-30MHz	95%	3.3dB

## 9. Appendix

### 9.1 Confirmation of Compliance within the Limits

#### 9.1.1 Method of calculating measurement result

Conducted Emission

For example the point of 0.182MHz, L1 QP, Page 35.

Reading + C. FACTOR = Result

Example    38.5    +        10.1        =        48.6