

# **FCC Part 15**

## **TEST REPORT**

*For*

**USB Bluetooth Transmitter D1**

**Model Name: MZ0440**

**Brand Name: CREATIVE**

**FCC ID: IBAMZ0440**

**Report No.: AGC10270908SZ09E6**

**Date of Issue: Sep.02, 2009**

*Prepared For*

**CREATIVE TECHNOLOGY LTD**

**31 International Business Park, Creative Resource, Singapore 609921**

TEL: 65-6895 4417

FAX: 65-6895 4644

*Prepared By*

**Attestation of Global Compliance Co., Ltd.**

**2F., No.2 Building, Huafeng No.1 Technical Industrial Park, Sanwei,**

**Xixiang, Baoan District, Shenzhen**

TEL: 86-755-2908 1966

FAX: 86-755-2600 8484

**VERIFICATION OF COMPLIANCE**

Applicant:	CREATIVE TECHNOLOGY LTD
Manufacturer	31 International Business Park, Creative Resource, Singapore 609921
Product Description:	USB Bluetooth Transmitter D1
Brand Name:	CREATIVE
Model Number:	MZ0440
FCC ID	IBAMZ0440
Report Number:	AGC10270908SZ09E6
Date of Test:	Aug.26, 2009-Sep.02, 2009

**WE HEREBY CERTIFY THAT:**

The above equipment was tested by Shenzhen Attestation of Global Compliance Science & Technology Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (2003) and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC Rules Part 15.247.

Checked By: Jekey Zhang  
Jekey Zhang Sep.02, 2009

Authorized By King Zhang  
King Zhang Sep.02, 2009

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## GENERAL INFORMATION

### 1.1 PRODUCT DESCRIPTION

The EUT is a short range, lower power; **USB Bluetooth Transmitter D1 (Class 2)** designed as an "Communication Device". It is designed by way of utilizing the FHSS technology to achieve the system operation.

A major technical description of EUT is described as following:

Operation Frequency	2.402 GHz to 2.480GHz
Rated Output Power	6.13 dBm
Modulation	GFSK and $\Pi/4$ DQPSK
Number of channels	79
Antenna Designation	Dedicated Antenna
Power Supply	DC 5.25~4.75V

### 1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for FCC ID: IBAMZ0440 filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

### 1.3 TEST METHODOLOGY

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4 (2003). Radiated testing was performed at an antenna to EUT distance 3 meters.

### 1.4 TEST FACILITY

All measurement facilities used to collect the measurement data are located at  
World Standardization Certification & Testing Co., Ltd.

1-2/F, Dachong Keji Building, No.28 of Tonggu Road, Nanshan District,  
Shenzhen, China

FCC Registration Number: 989301

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with preselectors and quasi-peak detectors are used to perform radiated measurements.

### 1.5 SPECIAL ACCESSORIES

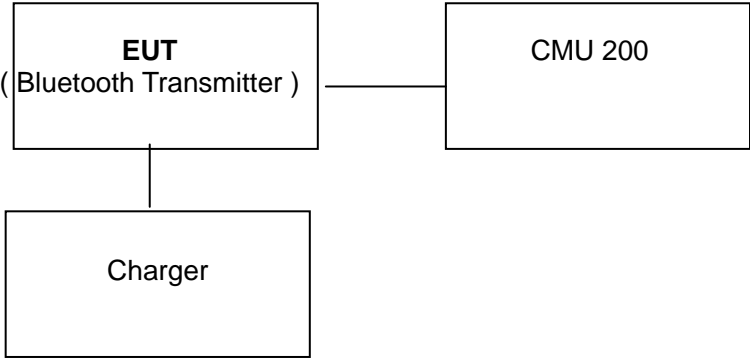
Not available for this EUT intended for grant.

### 1.6 EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

1. SYSTEM TEST CONFIGURATION

2.1 CONFIGURATION OF TESTED SYSTEM



2.2 EQUIPMENT USED IN TESTED SYSTEM

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID
1	USB Bluetooth Headset Transmitter D1	CREATIVE	MZ0440	IBAMZ0440
2	CMU	R&S	CMU200	--
3	Charger	--	--	--

### 3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.207	Conduction Emission	Compliant
§15.209	Radiated Emission	Compliant
§15.247	Maximum Output Power	Compliant
§15.247	20 dB Bandwidth	Compliant
§15.247	Band Edges	Compliant
§15.247	Spurious Emission	Compliant
§15.247	Frequency Separation	Compliant
§15.247	Number of Hopping Frequency	Compliant
§15.247	Time of Occupancy	Compliant
§15.247	Peak Power Density	Compliant

### 4. DESCRIPTION OF TEST MODES

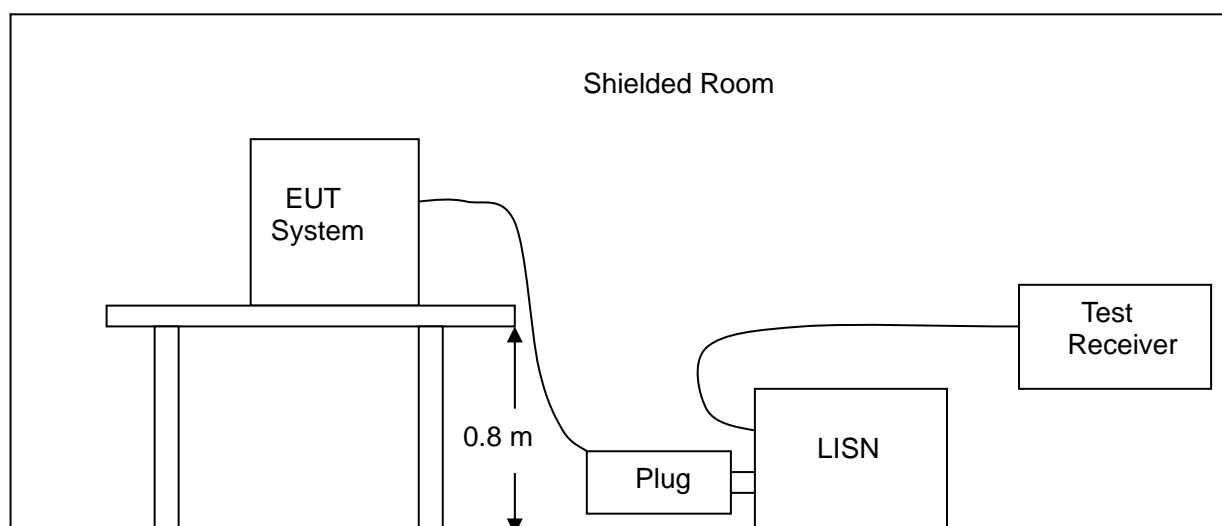
1. The EUT has been set to operate continuously on the lowest, the middle and the highest operation frequency individually.
2. The EUT stays in continuous transmitting mode on the operation frequency being set.

## 5. CONDUCTION EMISSIONS

### 5.1 MEASUREMENT PROCEDURE:

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4.
2. Support equipment, if needed, was placed as per ANSI C63.4.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
4. The EUT received DC5V power from USB through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5. All support equipments received AC power from a second LISN, if any.
6. The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.

### 5.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)



### 5.3 MEASUREMENT EQUIPMENT USED:

CONDUCTED EMISSION TEST SITE					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EMI TEST RECEIVER	HP	8546A/85460A	3625A00349 3448A00325	2008/10	2009/10
LISN	AFJ	LS16	16010222119	2009/04	2010/04



**5.4 LIMITS AND MEASUREMENT RESULT:****LIMITS OF LINE CONDUCTED EMISSION TEST**

Frequency	Maximum RF Line Voltage	
	Q.P.( dBuV)	Average( dBuV)
150kHz~500kHz	66-56	56-46
500kHz~5MHz	56	46
5MHz~30MHz	60	50

1\*\*Note: 1. The lower limit shall apply at the transition frequency.

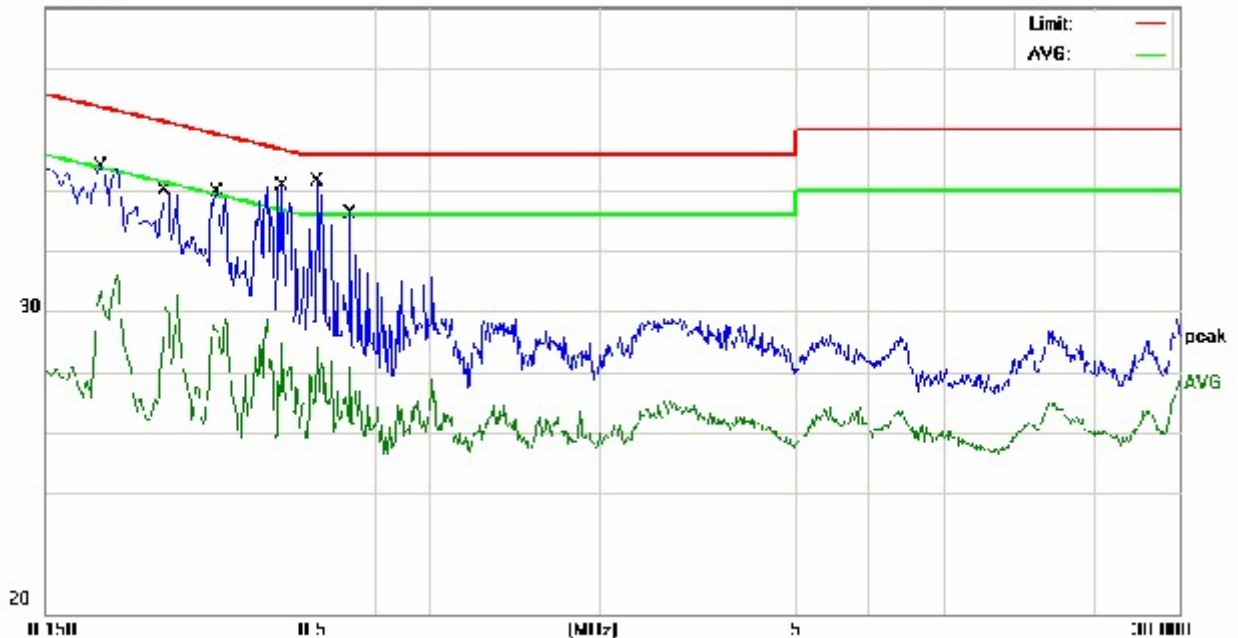
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz

**TEST RESULT OF LINE CONDUCTED EMISSION TEST****Conducted Emission Measurement**File :AGC  
80.0 dBuV

Data :#13

Date: 2009-9-1

Time: 17:08:13



Site site #1

Phase: **L1**

Temperature: 26

Limit: FCC Part 15 B(QP)

Power: AC 120V/60Hz

Humidity: 60 %

EUT: USB Bluetooth Transmitter D1

M/N: MZD440

Mode:

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1940	39.93	10.38	50.31	63.86	-13.55	QP	
2		0.1940	18.61	10.38	28.99	53.86	-24.87	AVG	
3		0.2620	33.38	10.60	43.98	61.37	-17.39	QP	
4		0.2620	13.18	10.60	23.78	51.37	-27.59	AVG	
5		0.3340	31.86	10.70	42.56	59.35	-16.79	QP	
6		0.3340	12.62	10.70	23.32	49.35	-26.03	AVG	
7		0.4540	32.33	10.70	43.03	56.80	-13.77	QP	
8		0.4540	7.45	10.70	18.15	46.80	-28.65	AVG	
9	*	0.5340	33.00	10.70	43.70	56.00	-12.30	QP	
10		0.5340	7.29	10.70	17.99	46.00	-28.01	AVG	
11		0.6260	27.06	10.61	37.67	56.00	-18.33	QP	
12		0.6260	4.03	10.61	14.64	46.00	-31.36	AVG	

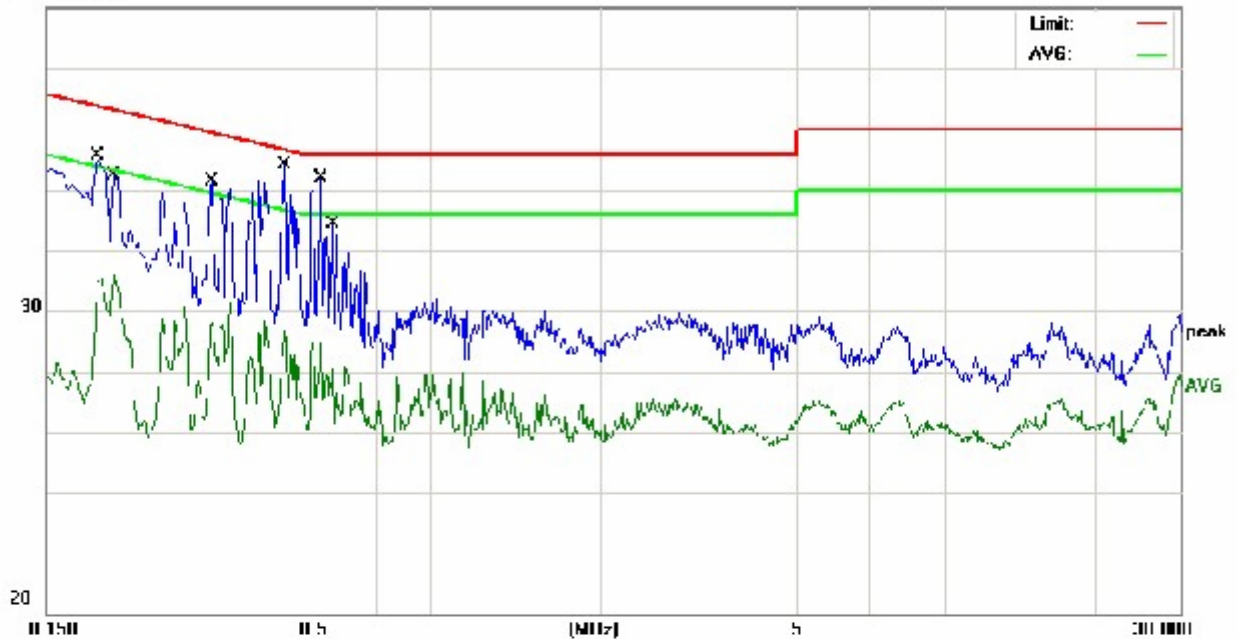
### Conducted Emission Measurement

File :AGC  
80.0 dBuV

Data :#12

Date: 2009-9-1

Time: 17:03:27



Site site #1

Phase: **N**

Temperature: 26

Limit: FCC Part 15 B(QP)

Power: AC 120V/60Hz

Humidity: 60 %

EUT: USB Bluetooth Transmitter D1

M/N: MZD440

Mode:

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1900	36.96	10.38	47.34	64.04	-16.70	QP	
2		0.1900	13.72	10.38	24.10	54.04	-29.94	AVG	
3	*	0.2060	41.19	10.40	51.59	63.37	-11.78	QP	
4		0.2060	24.31	10.40	34.71	53.37	-18.66	AVG	
5		0.3260	29.97	10.71	40.68	59.55	-18.87	QP	
6		0.3260	11.28	10.71	21.99	49.55	-27.56	AVG	
7		0.4580	31.90	10.70	42.60	56.73	-14.13	QP	
8		0.4580	8.00	10.70	18.70	46.73	-28.03	AVG	
9		0.5420	32.48	10.70	43.18	56.00	-12.82	QP	
10		0.5420	7.64	10.70	18.34	46.00	-27.66	AVG	
11		0.5740	27.63	10.66	38.29	56.00	-17.71	QP	
12		0.5740	4.17	10.66	14.83	46.00	-31.17	AVG	

## 6. MAXIMUM OUTPUT POWER

### 6.1 MEASUREMENT PROCEDURE:

#### CONDUCTED METHOD

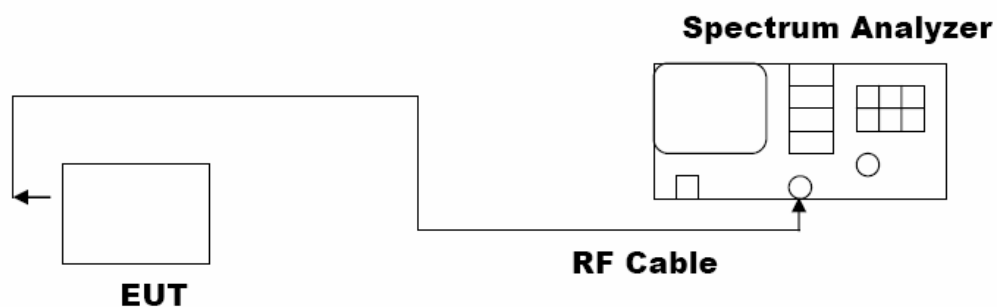
1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
3. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
4. Set SPA Centre Frequency = Operation Frequency, RBW= 1 MHz, VBW= 1 MHz.
5. Set SPA Trace 1 Max hold, then View.

#### RADIATED METHOD

According to ANSI C63.4:2003

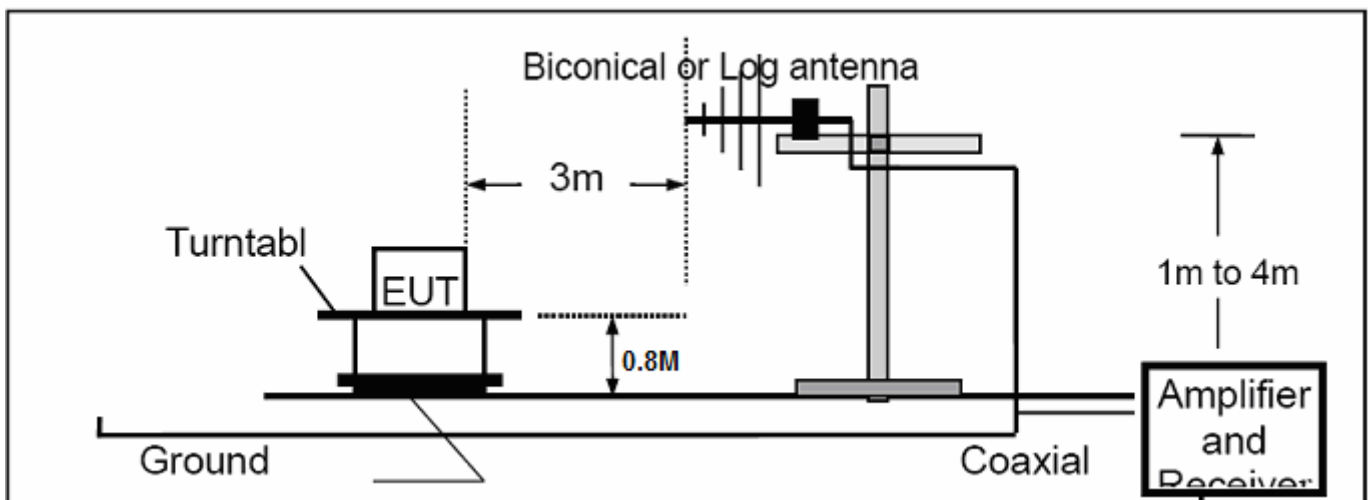
### 6.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

#### CONDUCTED METHOD

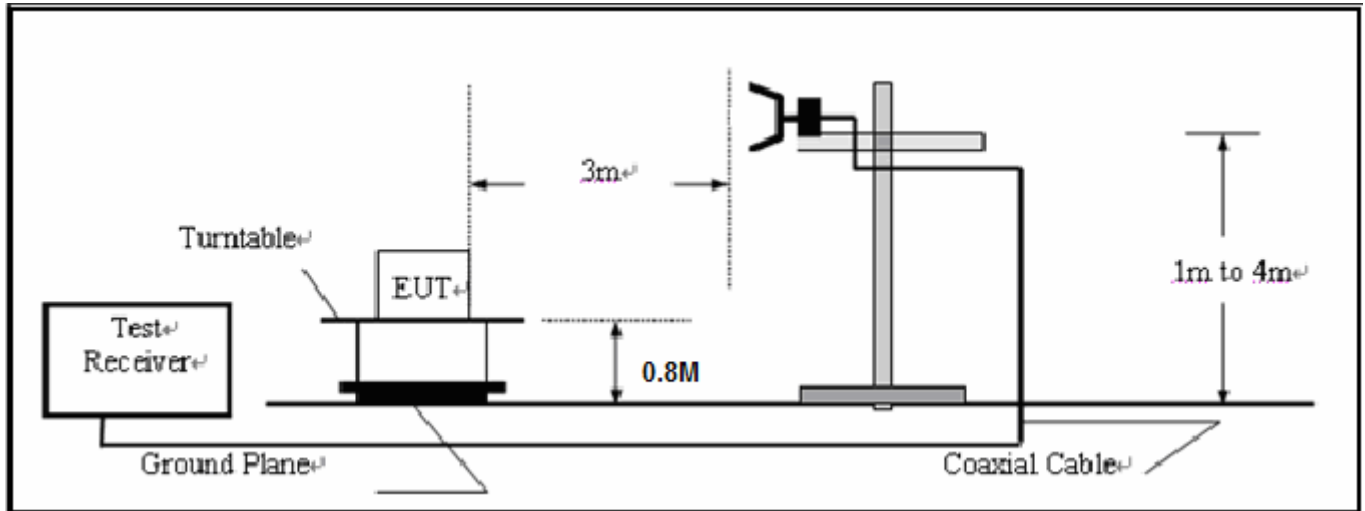


#### RADIATED EMISSION TEST SETUP

RADIATED EMISSION TEST SETUP BELOW 1000MHz

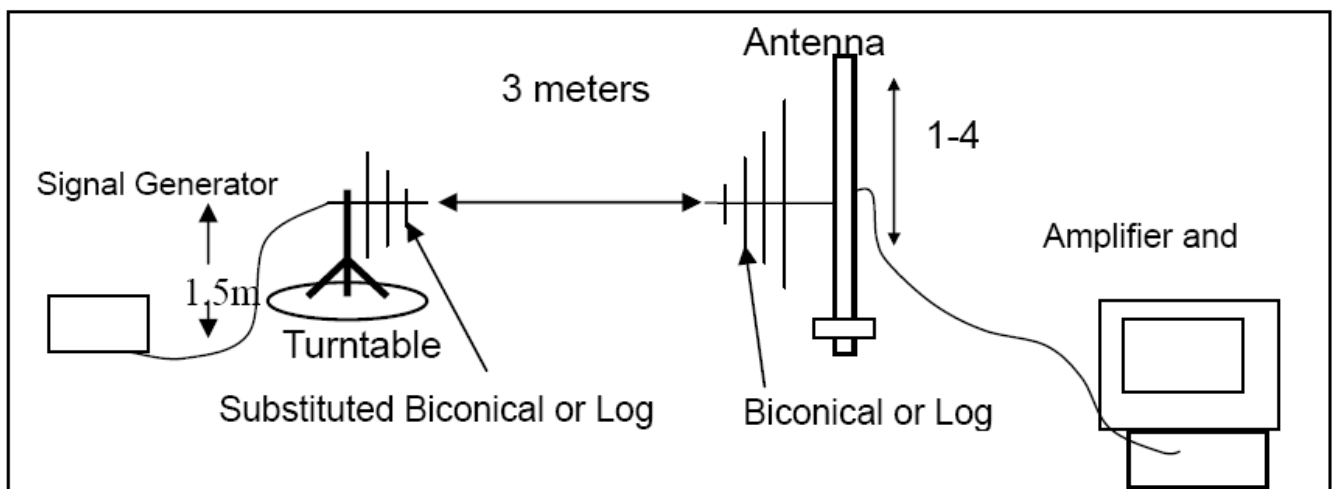
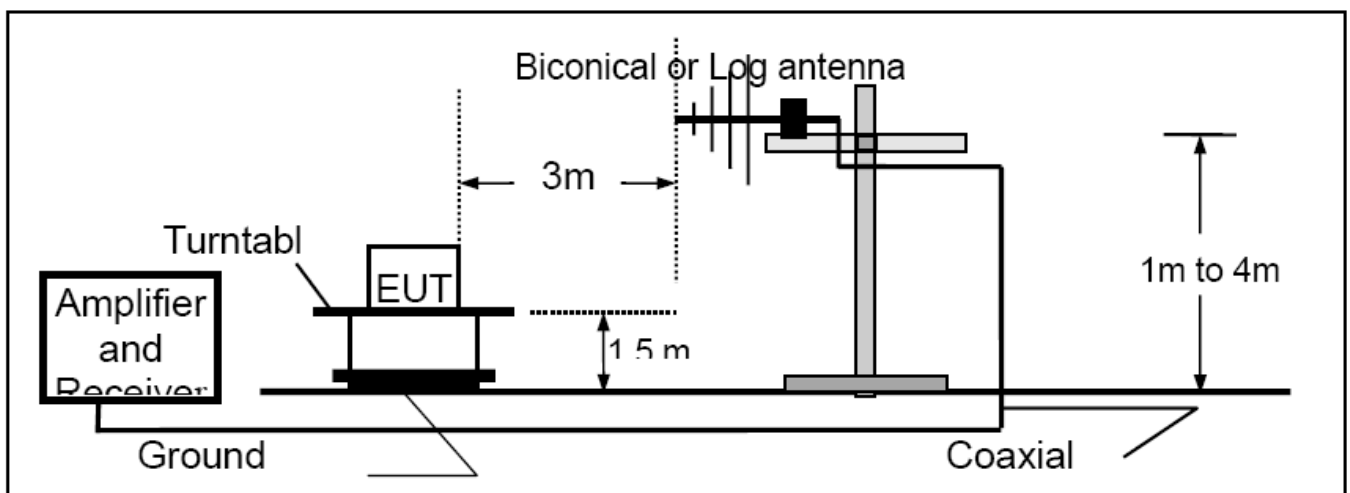


## RADIATED EMISSION TEST SETUP ABOVE 1000MHz

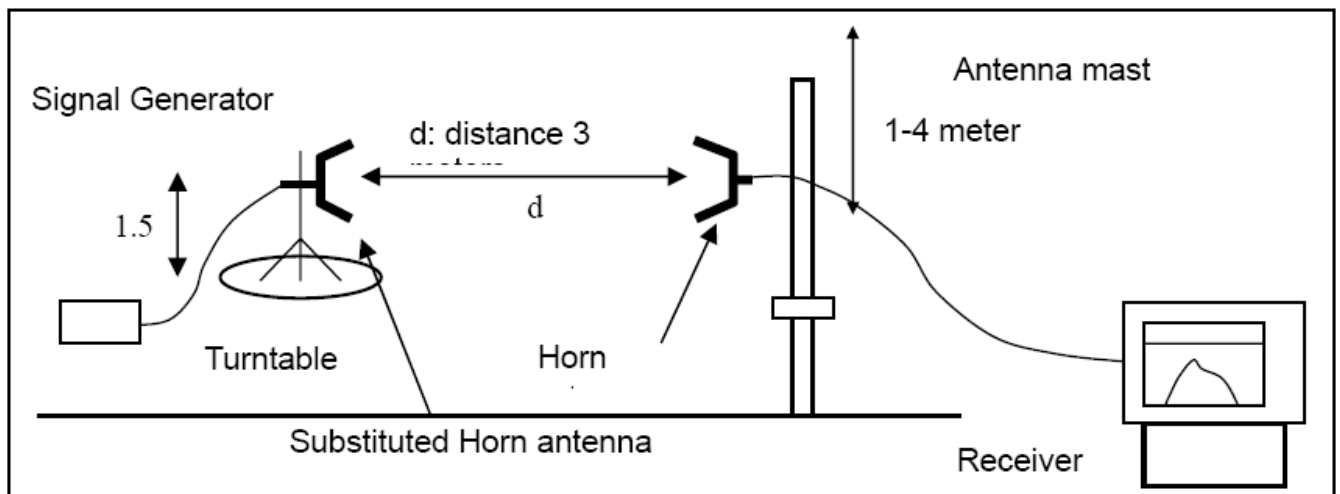
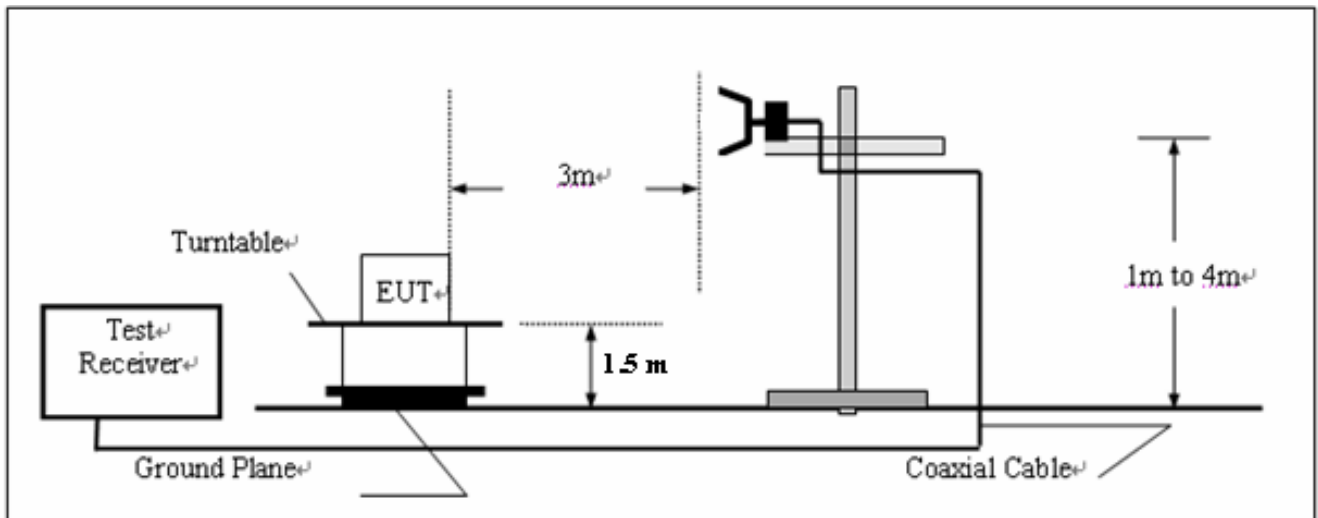


EIRP TEST SETUP

## TEST SETUP BELOW 1GHz



### TEST SETUP ABOVE 1GHZ



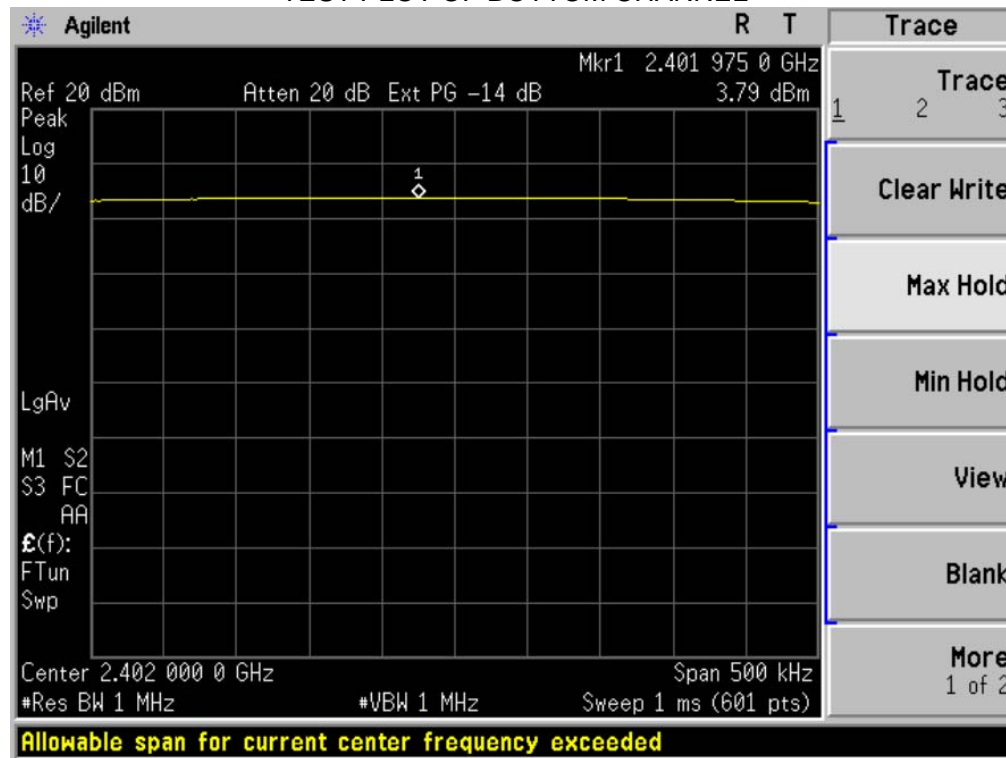
### 6.3 MEASUREMENT EQUIPMENT USED:

3M ANECHOIC CHAMBER RADIATION TEST SITE					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EMI Test Receiver	R&S	ESCS30	100343	04/16/2009	04/15/2010
AMPLIFIER	HP	HP8447E	2945A02715	04/16/2009	04/15/2010
ANTENNA	Sunol Sciences Corp.	JB3	A021907	04/16/2009	04/15/2010
ANTENNA	Sunol Sciences Corp.	JB3	A021907	04/16/2009	04/15/2010
Spectrum Analyzer	Agilent	E4440A	US41421290	04/16/2009	04/15/2010

#### 6.4 LIMITS AND MEASUREMENT RESULT:

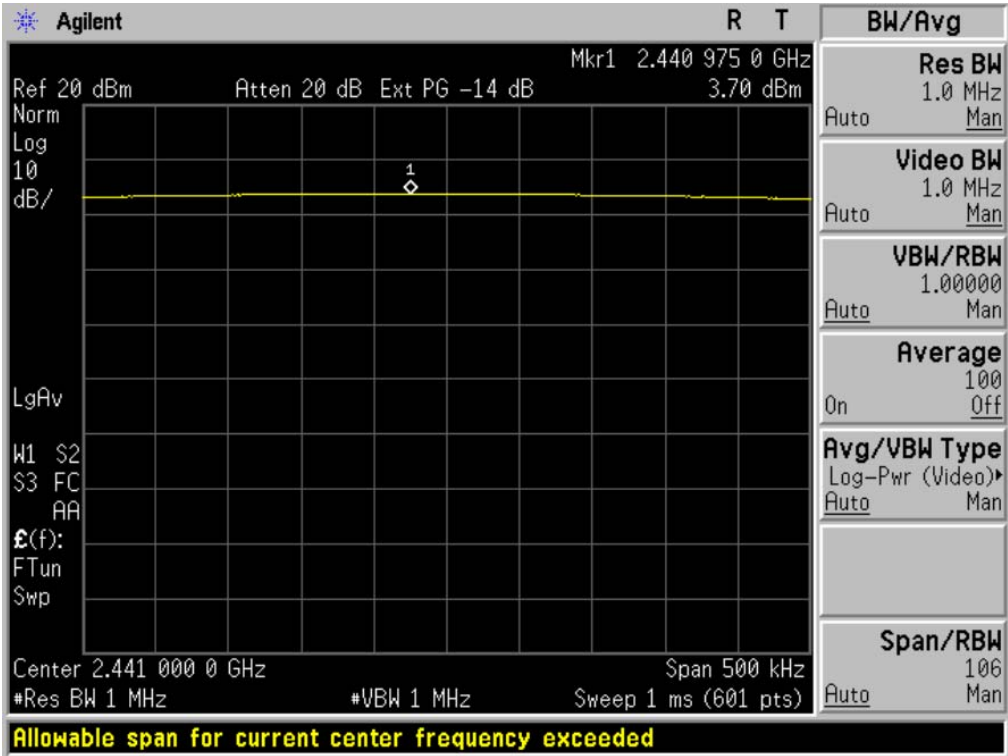
LIMITS AND MEASUREMENT RESULT				
Applicable Limits	Frequency	Measurement Result		
		EIRP (dBm)	Conducted (dBm)	Criteria
30 dBm	2.402GHz	4.87	3.79	PASS
30 dBm	2.441GHz	4.62	3.70	PASS
30 dBm	2.480GHz	6.13	5.28	PASS

TEST PLOT OF BOTTOM CHANNEL

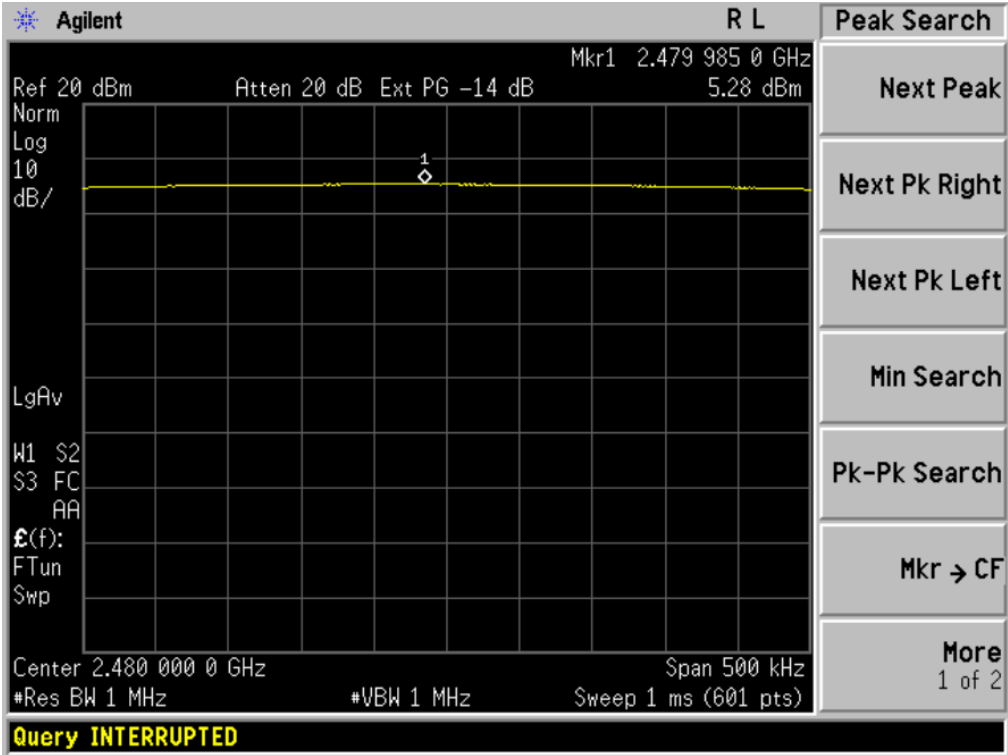




TEST PLOT OF MIDDLE CHANNEL



TEST PLOT OF TOP CHANNEL



## 7. 20 DB BANDWIDTH

### 7.1 MEASUREMENT PROCEDURE

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
3. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set SPA Centre Frequency = Operation Frequency, RBW= 100 KHz, VBW= 100 KHz.
4. Set SPA Trace 1 Max hold, then View.

### 7.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

The Same as described in Section 6.2

### 7.3 MEASUREMENT EQUIPMENT USED:

The same as described in Section 6.3

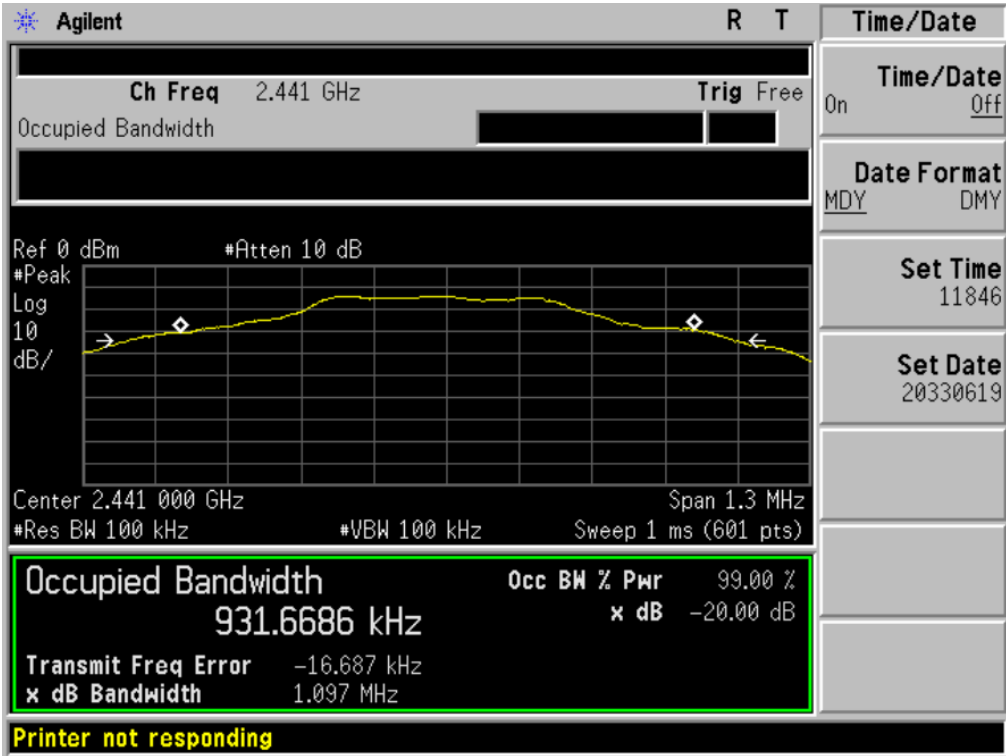
### 7.4 LIMITS AND MEASUREMENT RESULTS:

LIMITS AND MEASUREMENT RESULT			
Applicable Limits	Measurement Result		
	Test Data (MHz)		Criteria
--	Bottom Channel	1.077	PASS
	Middle Channel	1.097	PASS
	Top Channel	1.109	PASS

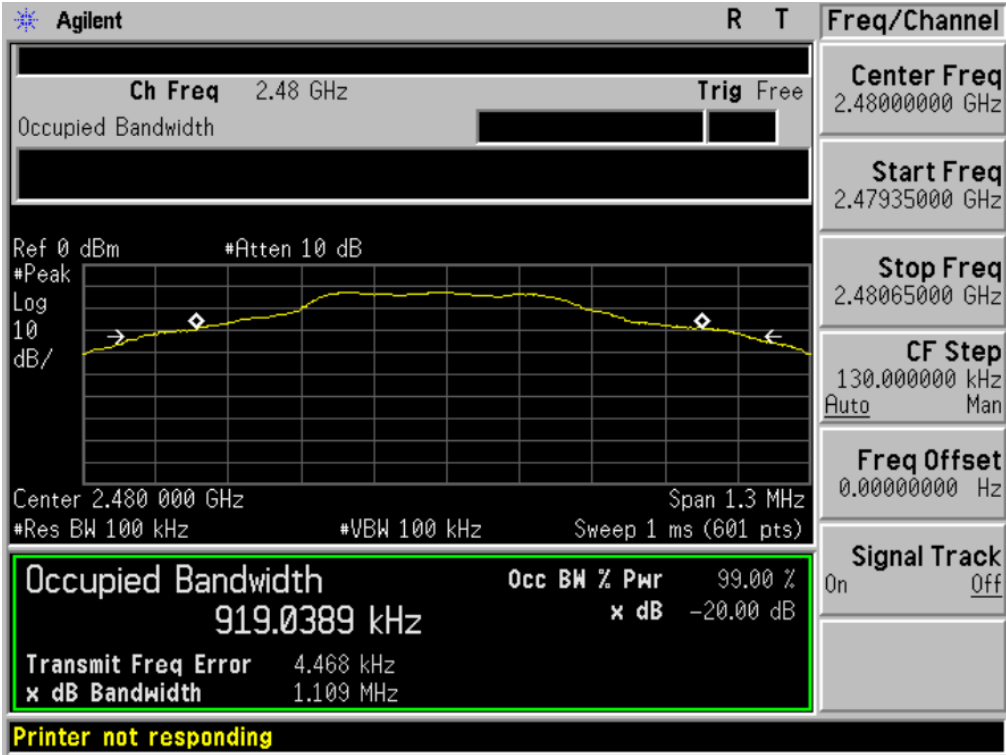
TEST PLOT OF BANDWIDTH FOR BOTTOM CHANNEL



TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



TEST PLOT OF BANDWIDTH FOR TOP CHANNEL

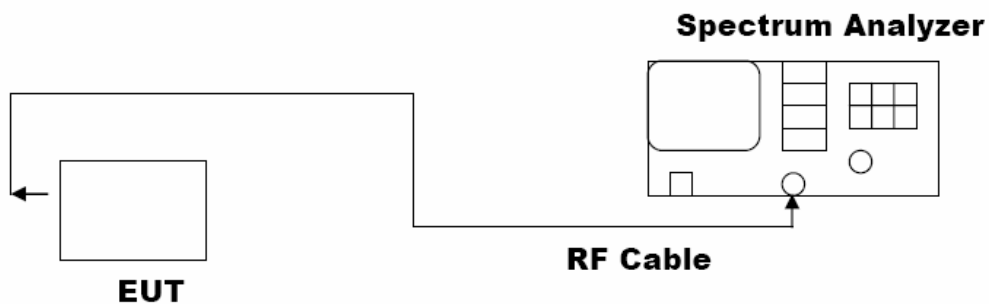


## 8. MAXIMUM CONDUCTED OUTPUT POWER SPECTRAL DENSITY

### 8.1 MEASUREMENT PROCEDURE:

- (1). The EUT was placed on a turn table which is 0.8m above ground plane.
- (2). Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- (3). Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- (4). Set SPA Centre Frequency = Operation Frequency, RBW= 3 KHz,  
VBW= 10 KHz., Sweep time= Auto
- (5). Set SPA Trace 1 Max hold, then View.

### 8.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)



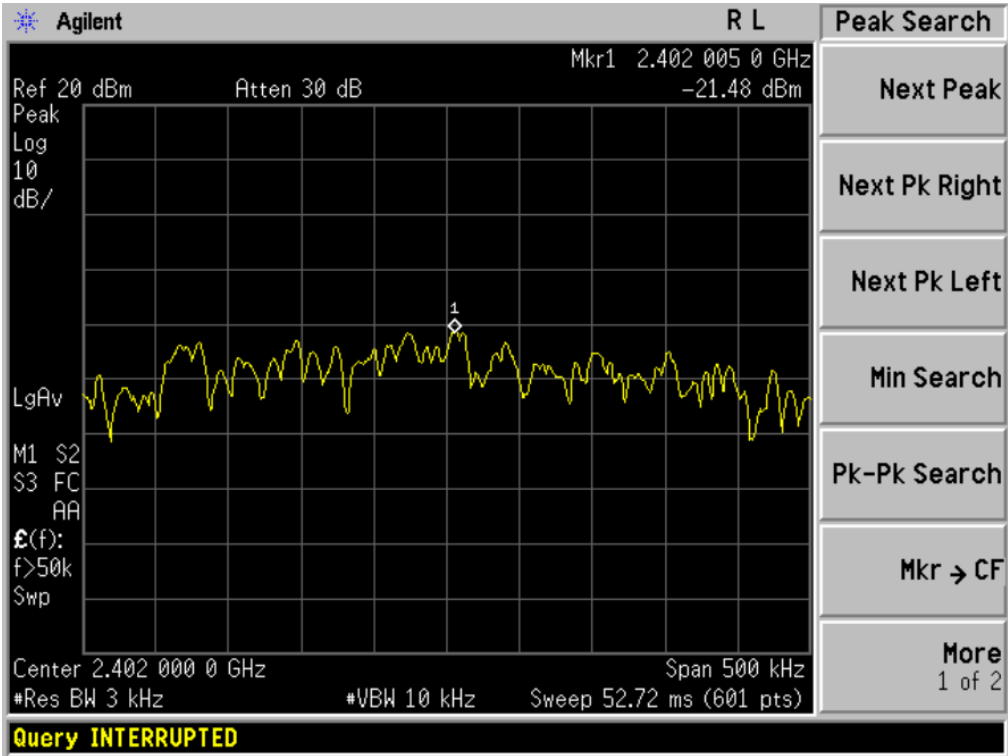
### 8.3 MEASUREMENT EQUIPMENT USED:

SHIELDING ROOM					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Agilent	E4440A	US41421290	04/16/2009	04/15/2010

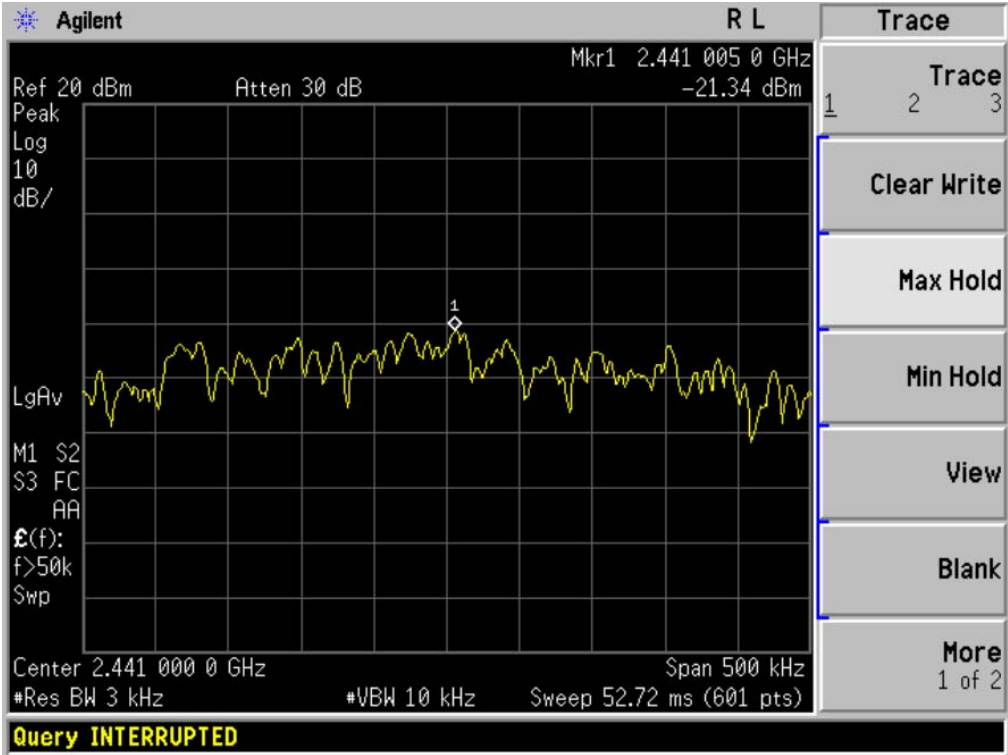
### 8.4 LIMITS AND MEASUREMENT RESULT:

LIMITS AND MEASUREMENT RESULT			
Applicable Limits	Measurement Result		
	Test Data (dBm/3KHz)		Criteria
8 dBm / 3KHz	Bottom Channel	-21.48	PASS
	Middle Channel	-21.34	PASS
	Top Channel	-20.28	PASS

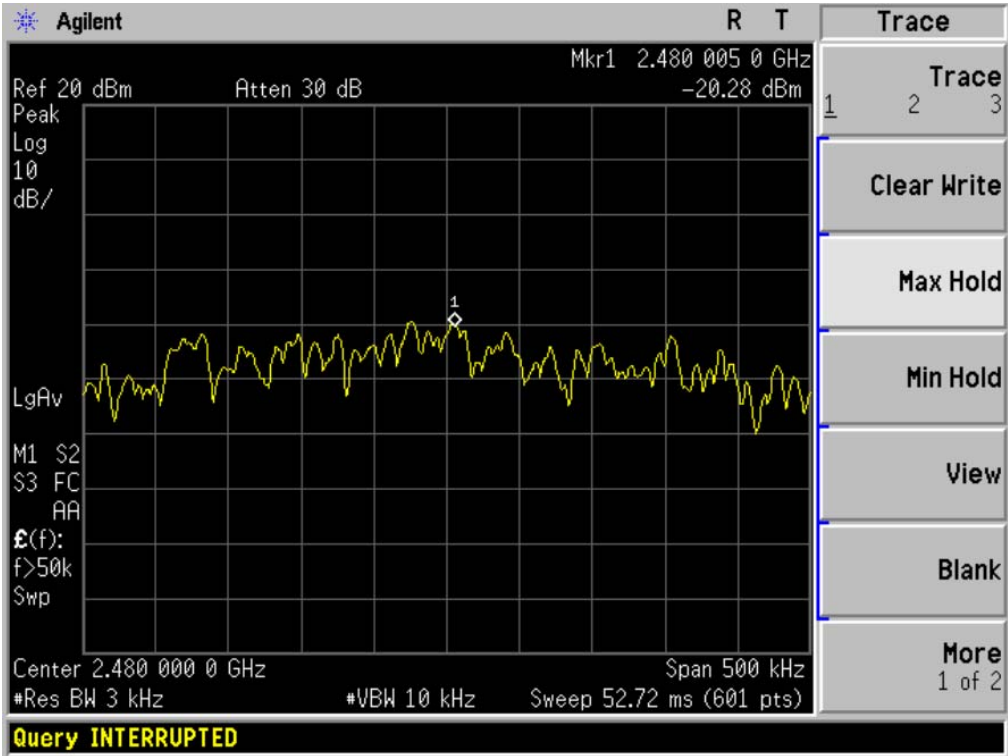
TEST PLOT OF SPECTRAL DENSITY – BOTTOM CHANNEL



TEST PLOT OF SPECTRAL DENSITY – MIDDLE CHANNEL



TEST PLOT OF SPECTRAL DENSITY – TOP CHANNEL



## 9. OUT OF BAND EMISSION

### 9.1 MEASUREMENT PROCEDURE:

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
3. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set SPA Centre Frequency = Operation Frequency, RBW= 100 KHz, VBW= 100 KHz.
4. Set SPA Trace 1 Max hold, then View.

### 9.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

The Same as described in section 6.2

1. Conducted test setup
2. Radiated Emission test Setup below 1Ghz and Above 1GHz

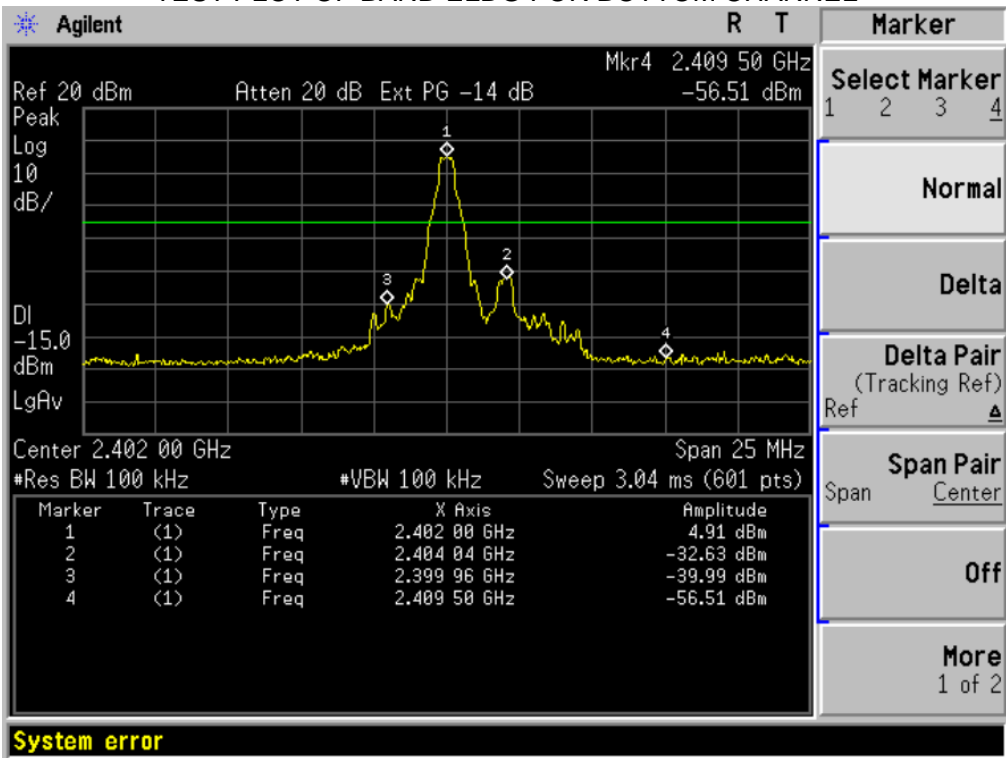
### 9.3 MEASUREMENT EQUIPMENT USED:

The Same as described in section 6.3

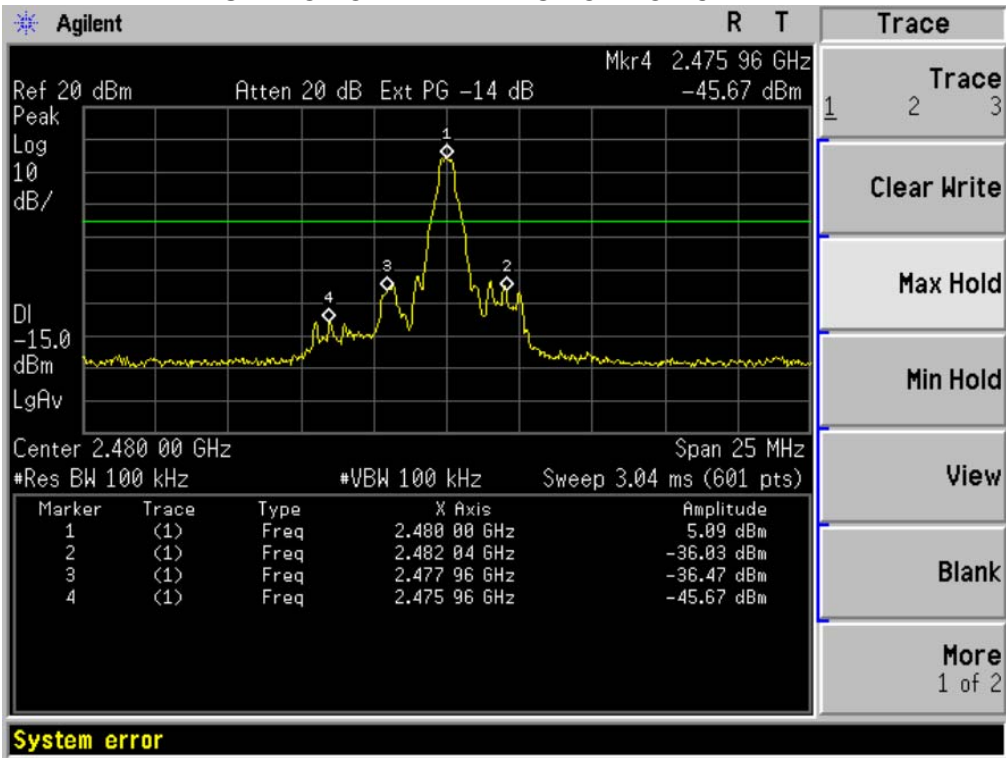
### 9.4 LIMITS AND MEASUREMENT RESULT:

LIMITS AND MEASUREMENT RESULT		
Applicable Limits	Measurement Result	
	Test Data	Criteria
<p>In any 100 KHz Bandwidth Outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produce by the intentional radiator shall be at least 20 dB below that in 100KHz bandwidth within the band that contains the highest level of the desired power.</p> <p>In addition, radiation emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in§15.209(a))</p>	At least -20dBc than the limit Specified on the BOTTOM Channel	PASS
	At least -20dBc than the limit Specified on the TOP Channel	PASS

TEST PLOT OF BAND ELDG FOR BOTTOM CHANNEL

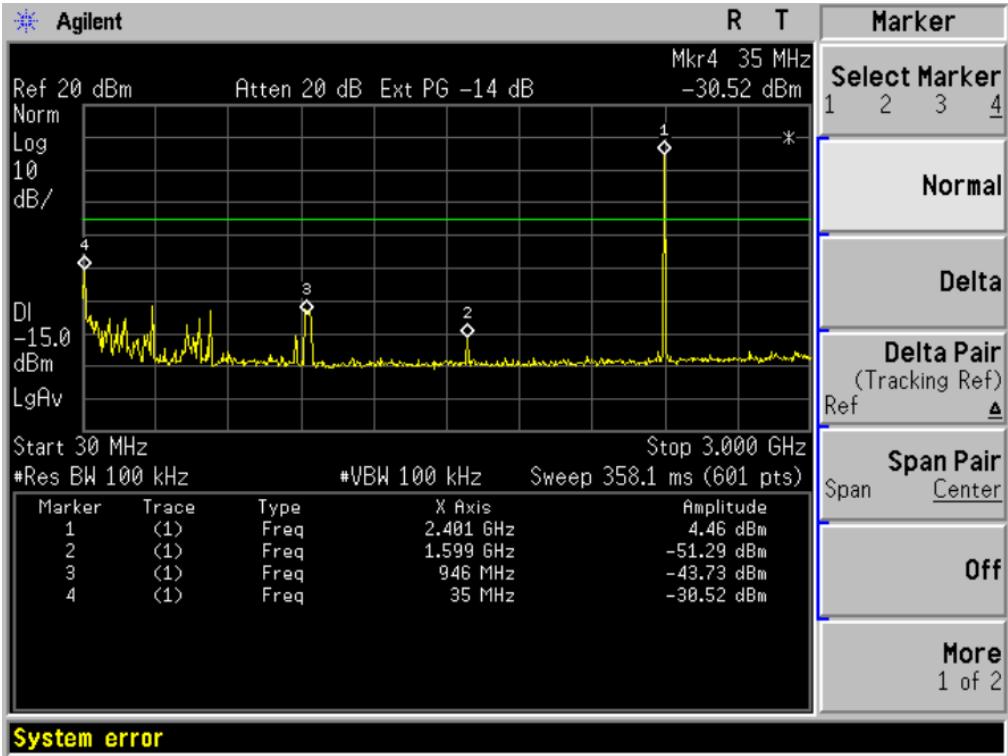


TEST PLOT OF BAND ELDG FOR TOP CHANNEL

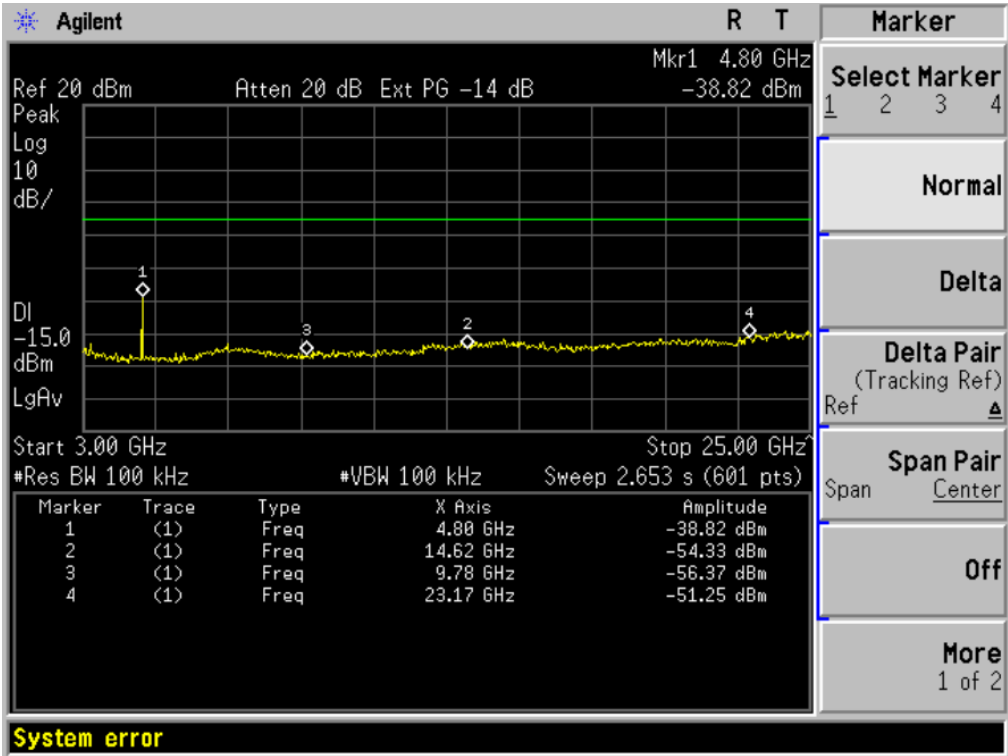




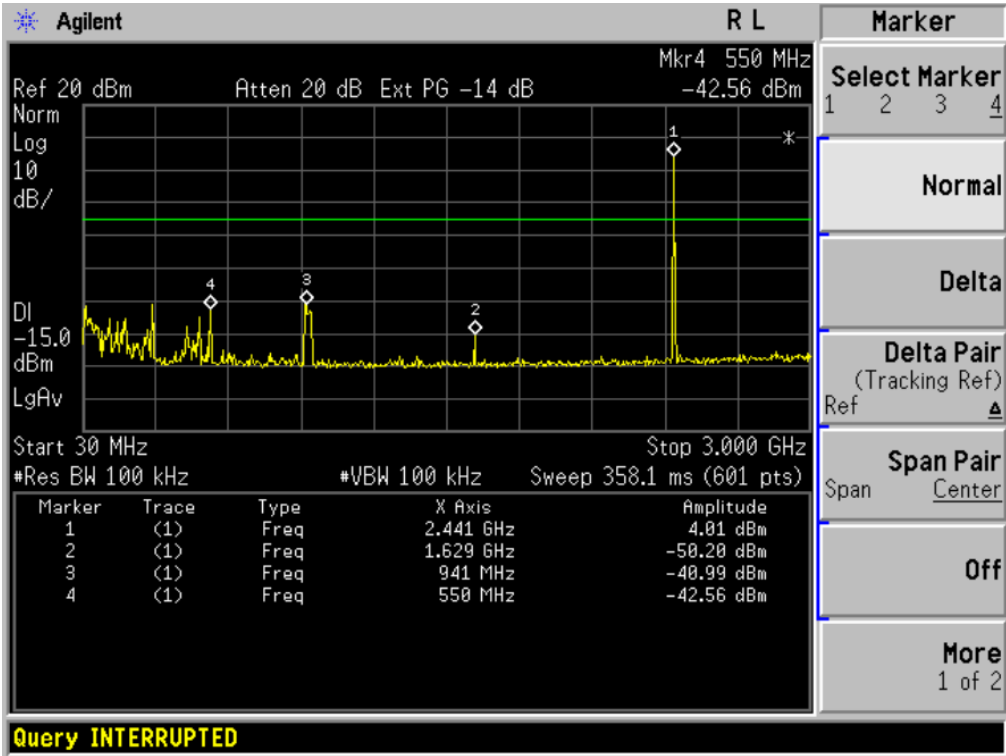
TEST PLOT OF OUT OF BAND EMISSIONS FOR BOTTOM CHANNEL - 1



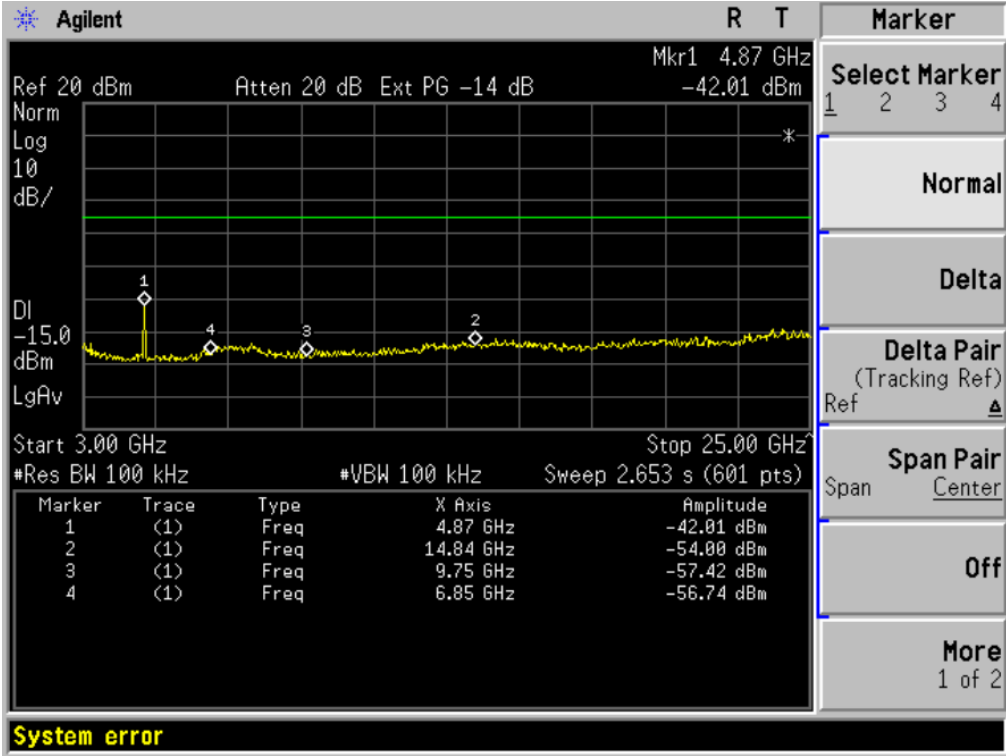
TEST PLOT OF OUT OF BAND EMISSIONS FOR BOTTOM CHANNEL - 2



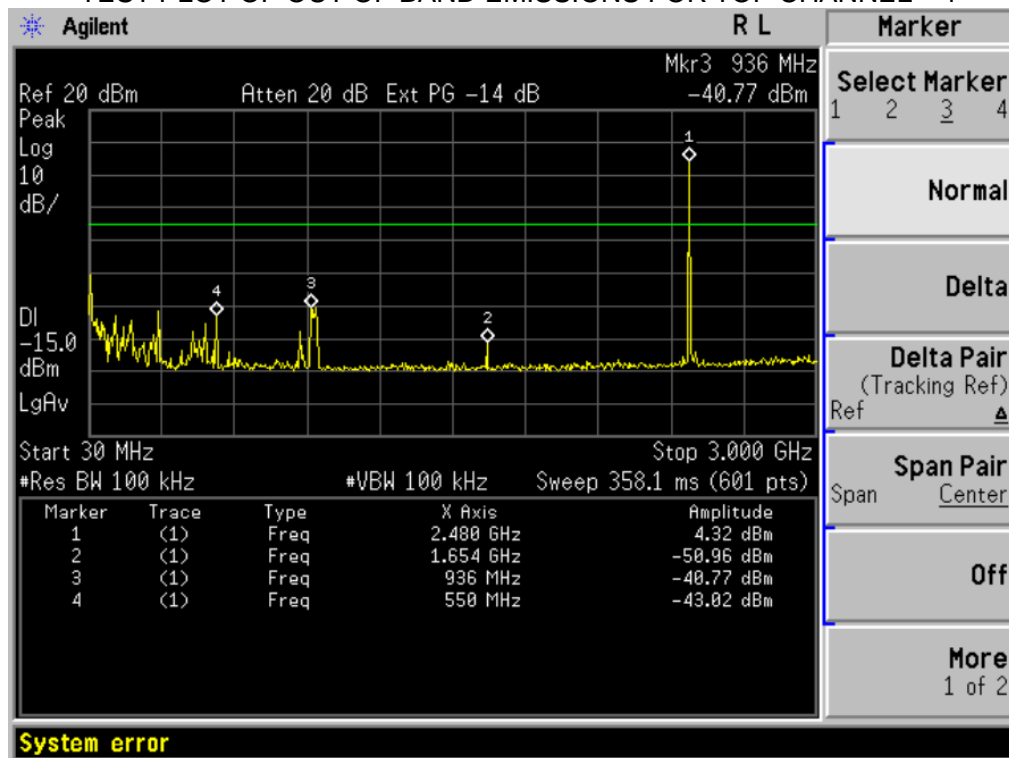
TEST PLOT OF OUT OF BAND EMISSIONS FOR MIDDLE CHANNEL – 1



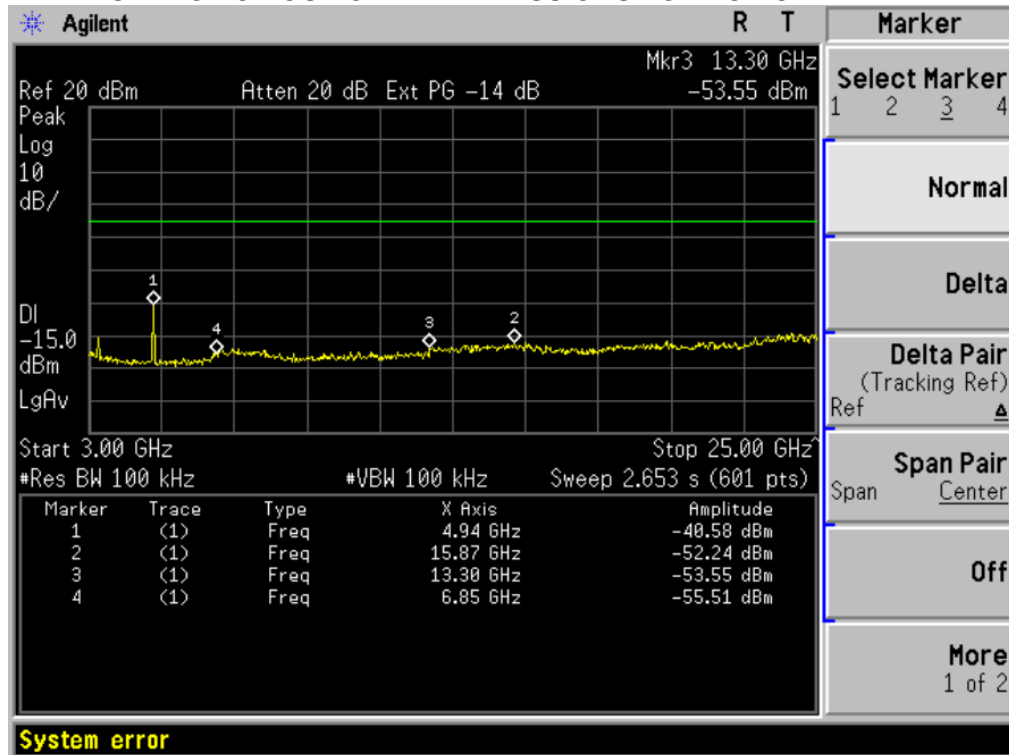
TEST PLOT OF OUT OF BAND EMISSIONS FOR MIDDLE CHANNEL – 2



## TEST PLOT OF OUT OF BAND EMISSIONS FOR TOP CHANNEL – 1



## TEST PLOT OF OUT OF BAND EMISSIONS FOR TOP CHANNEL – 2



# **RADIATED EMISSION BELOW 1GHZ** **Radiated Emission Measurement**

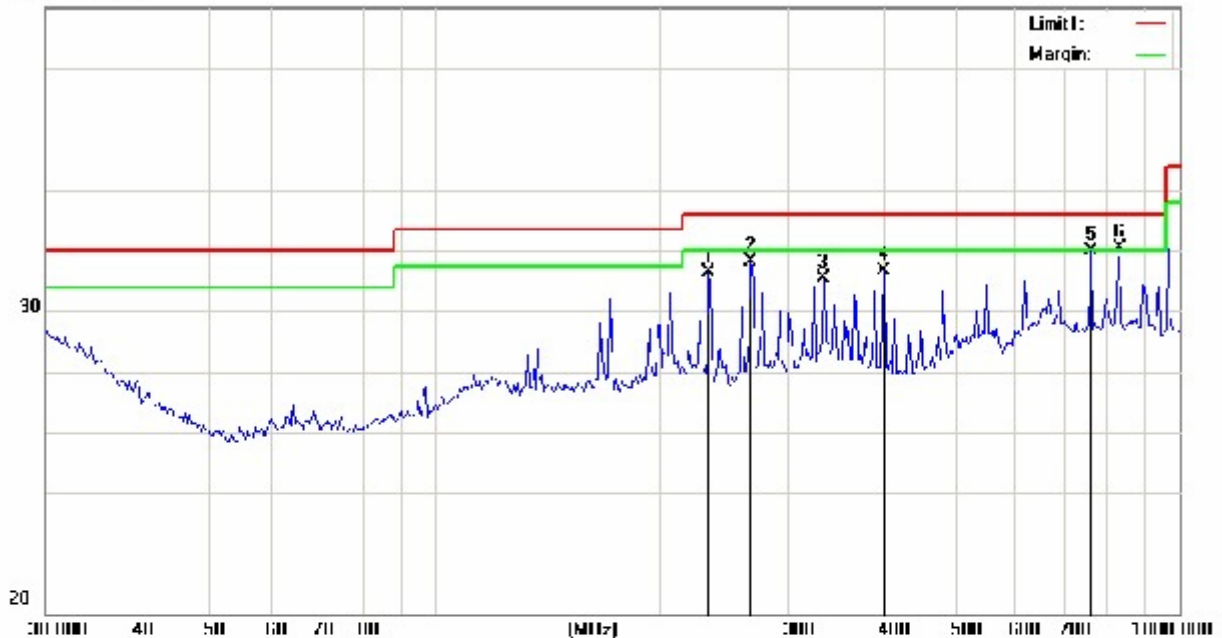
File :AGC

Data :#14

Date: 2009/09/01

Time: 15:25:55

80.0 dBuV/m



Site site #1

Limit: FCC Part15B Class B\_ RE 3M

EUT: USB Bluetooth Transmitter D1

M/N: NZD440

Mode:

Note:

Polarization: *Horizontal*

Temperature: 26

Power: AC 120V/60Hz

Humidity: 60 %

Distance: 3m

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table	
		MHz	Level	Factor	ment			Height	Degree	
			dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		233.2962	41.98	-5.72	36.26	46.00	-9.74	peak		
2		265.4847	42.07	-3.87	38.20	46.00	-7.80	peak		
3		332.3991	38.23	-2.85	35.38	46.00	-10.62	peak		
4		400.1260	40.03	-3.45	36.58	46.00	-9.42	peak		
5		759.3027	36.51	3.47	39.98	46.00	-6.02	peak		
6	*	830.7362	35.76	4.63	40.39	46.00	-5.61	peak		

## Radiated Emission Measurement

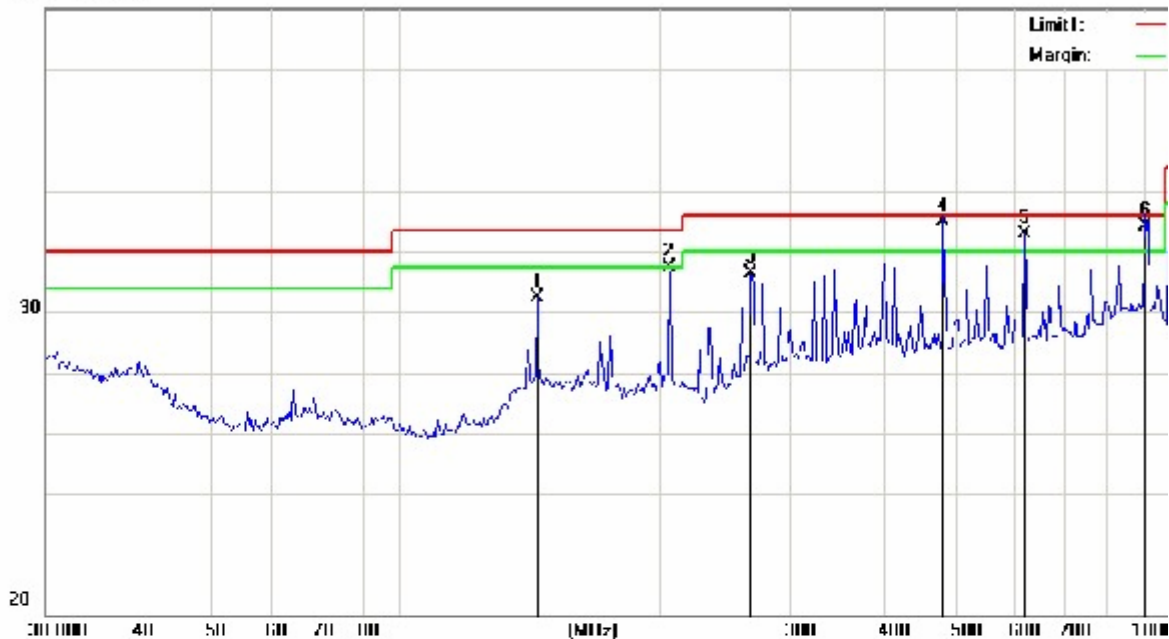
File : AGC

Data : #16

Date: 2009/09/01

Time: 15:27:32

80.0 dBuV/m



Site site #1

Polarization: **Vertical**

Temperature: 26

Limit: FCC Part15B Class B\_ RE 3M

Power: AC 120V/60Hz

Humidity: 60 %

EUT: USB Bluetooth Transmitter D1

Distance: 3m

M/N: NZD440

Mode:

Note:

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table	
		MHz	Level	Factor	ment			Height	Degree	
			dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		137.5624	37.92	-5.47	32.45	43.50	-11.05	peak		
2		206.1657	44.44	-7.17	37.27	43.50	-6.23	peak		
3		265.4847	39.16	-2.77	36.39	46.00	-9.61	peak		
4	*	481.6523	45.74	-0.91	44.83	46.00	-1.17	peak		
5	!	620.2354	42.32	0.49	42.81	46.00	-3.19	peak		
6	!	898.7322	37.22	6.79	44.01	46.00	-1.99	peak		

Band Edge Emission for Bottom Channel						
Frequency	Antenna Pol.	Field Strength	Field Strength	Limit (PK)	Limit (AV)	Memo
GHz	H/V	dBuV/m (PK)	dBuV/m (AV)	dBuV/m	dBuV/m	
2.386	H	53.21	41.23	74	54	*
2.400	H	53.41	46.12	74	54	*
2.386	V	44.31	40.56	74	54	*
2.400	V	53.51	45.08	74	54	*

Band Edge Emission for Top Channel						
Frequency	Antenna Pol.	Field Strength	Field Strength	Limit (PK)	Limit (AV)	Memo
GHz	H/V	dBuV/m (PK)	dBuV/m (AV)	dBuV/m	dBuV/m	
2.483	H	52.72	45.97	74	54	*
2.484	H	51.67	46.87	74	54	*
2.496	H	45.11	40.71	74	54	*
2.483	V	49.78	43.19	74	54	*
2.484	V	50.47	45.02	74	54	*
2.496	V	44.07	38.08	74	54	*

Restricted Band Emission for Bottom Channel						
Frequency	Antenna Pol.	Field Strength	Field Strength	Limit (PK)	Limit (AV)	Memo
GHz	H/V	dBuV/m (PK)	dBuV/m (AV)	dBuV/m	dBuV/m	
4.81	H	57.32	48.21	74	54	*
4.81	V	56.68	44.07	74	54	*
Above 4.81 GHz	H	--	--	74	54	*
	V	--	--	74	54	*

Restricted Band Emission for Middle Channel						
Frequency	Antenna Pol.	Field Strength	Field Strength	Limit (PK)	Limit (AV)	Memo
GHz	H/V	dBuV/m (PK)	dBuV/m (AV)	dBuV/m	dBuV/m	
4.88	H	56.98	46.43	74	54	*
4.88	V	53.21	43.80	74	54	*
Above 4.88 GHz	H	--	--	74	54	*
	V	--	--	74	54	*

Restricted Band Emission for Top Channel						
Frequency	Antenna Pol.	Field Strength	Field Strength	Limit (PK)	Limit (AV)	Memo
GHz	H/V	dBuV/m (PK)	dBuV/m (AV)	dBuV/m	dBuV/m	
4.95	H	52.31	45.98	74	54	*
4.95	V	51.09	41.72	74	54	*
Above 4.95GHz	H	--	--	74	54	*
	V	--	--	74	54	*

**Note:** "--" Indicated the test value is much lower to limit.

## 10. NUMBER OF HOPPING FREQUENCY

### 10.1 MEASUREMENT PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer Start = 2.4GHz Stop = 2.4835GHz, Sweep = Auto
4. Set the Spectrum Analyzer as RBW = VBW = 1MHz

### 10.2 TEST SETUP (BLOCK DIAGRAM OF CONFIGURATION)

Same as described in section 6.2

1. Conducted Method.

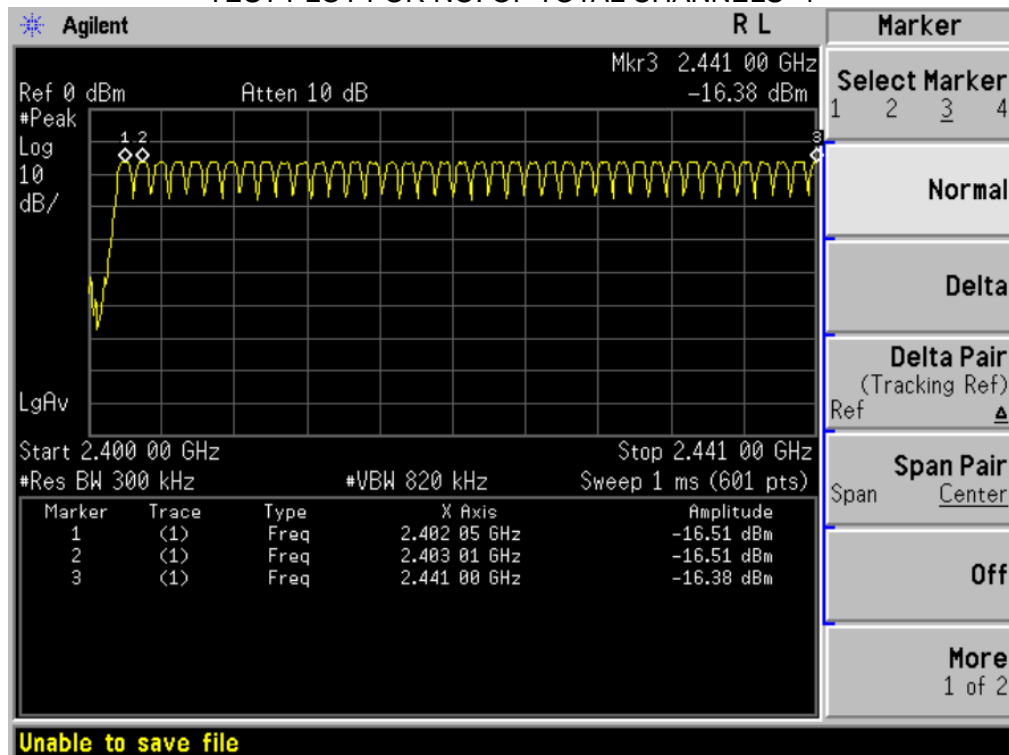
### 10.3 MEASUREMENT EQUIPMENT USED

The Same as described in section 6.3

### 10.4 LIMITS AND MEASUREMENT RESULT:

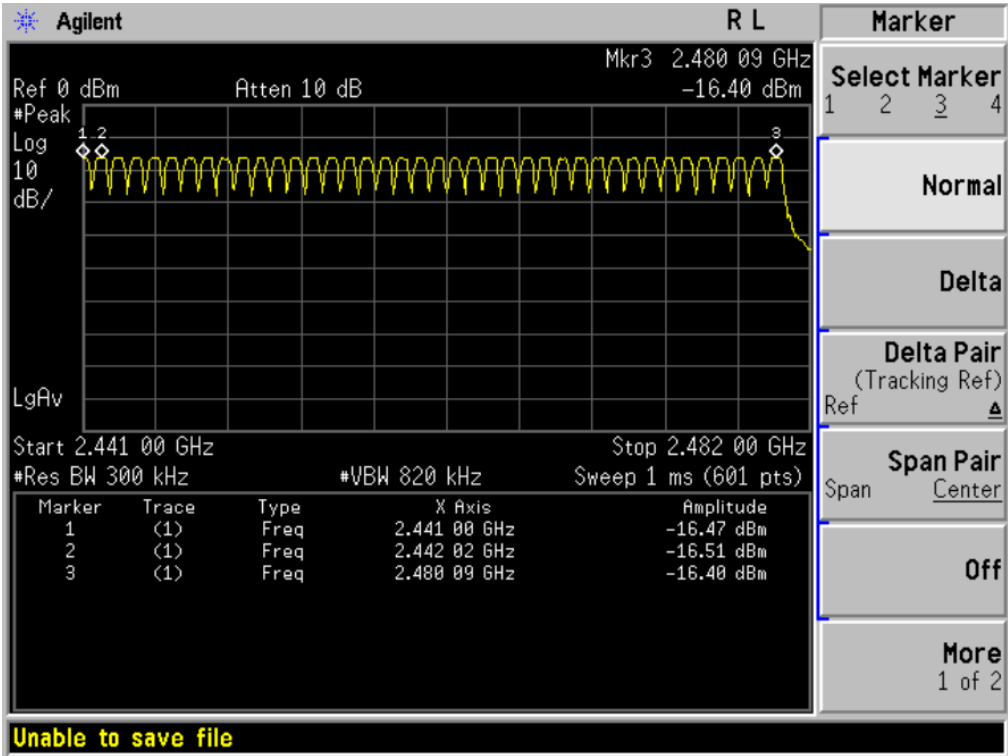
TOTAL NO. OF HOPPING CHANNEL	LIMIT (NO. OF CH)	MEASUREMENT (NO. OF CH)	RESULT
	$\geq 15$	79	PASS

TEST PLOT FOR NO. OF TOTAL CHANNELS -1





TEST PLOT FOR NO. OF TOTAL CHANNELS -2



## 11. TIME OF OCCUPANCY (DWELL TIME)

### 11.1 MEASUREMENT PROCEDURE

1. Place the EUT on the table and set it in transmitting mode
2. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum analyzer
3. Set center frequency of spectrum analyzer = Operating frequency
4. Set the spectrum analyzer as RBW, VBW=1MHz, Span = 0 Hz,

### 11.2 TEST SETUP (BLOCK DIAGRAM OF CONFIGURATION)

Same as described in section 6.2  
Conducted Method

### 11.3 MEASUREMENT EQUIPMENT USED

The same as described in section 6.3

### 11.4 LIMITS AND MEASUREMENT RESULT

The dwell time = Time Slot Length \* Hop Rate / Number of Hopping Channels \* 0.4 \* 79

L-CH:

DH1 Time Slot =  $0.373 \text{ (ms)} * (1600/(2*79)) * 31.6 = 119.3 \text{ (ms)}$

DH3 Time Slot =  $1.620 \text{ (ms)} * (1600/(4*79)) * 31.6 = 259.2 \text{ (ms)}$

DH5 Time Slot =  $2.880 \text{ (ms)} * (1600/(6*79)) * 31.6 = 307.2 \text{ (ms)}$

M-CH:

DH1 Time Slot =  $0.370 \text{ (ms)} * (1600/(2*79)) * 31.6 = 118.4 \text{ (ms)}$

DH3 Time Slot =  $1.610 \text{ (ms)} * (1600/(4*79)) * 31.6 = 257.6 \text{ (ms)}$

DH5 Time Slot =  $2.870 \text{ (ms)} * (1600/(6*79)) * 31.6 = 306.1 \text{ (ms)}$

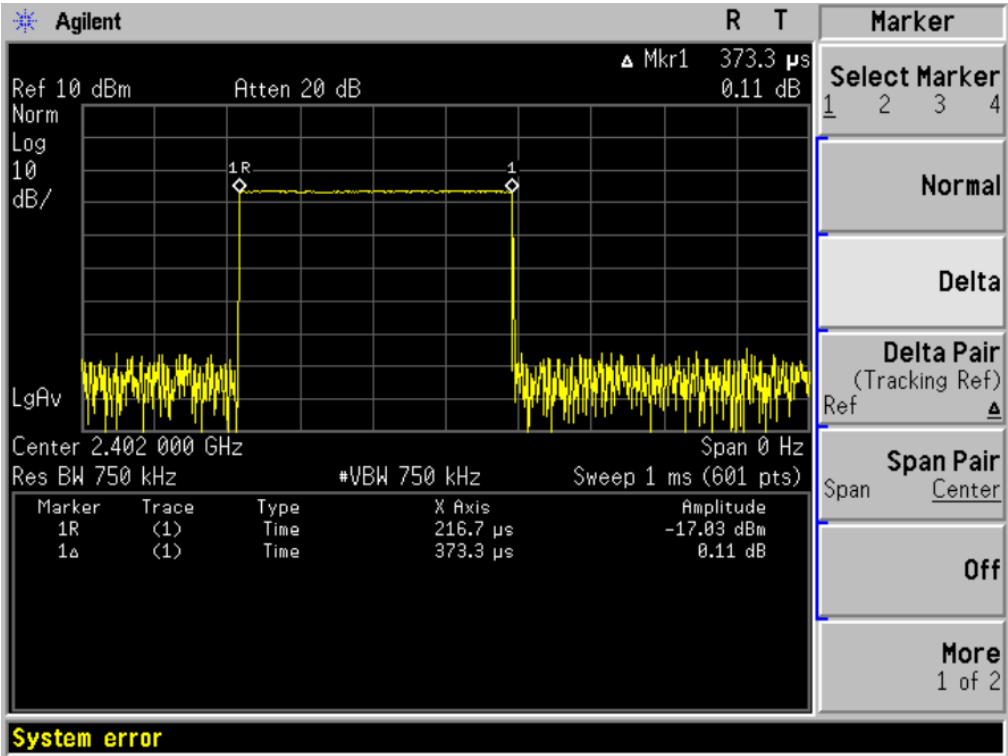
H-CH:

DH1 Time Slot =  $0.367 \text{ (ms)} * (1600/(2*79)) * 31.6 = 117.4 \text{ (ms)}$

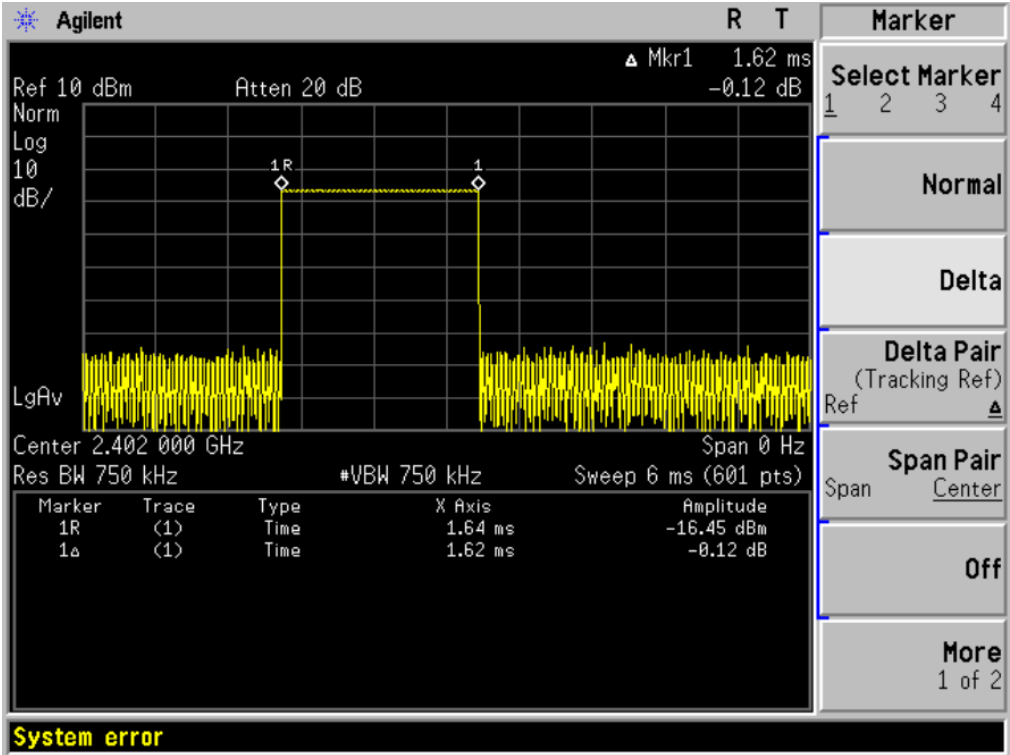
DH3 Time Slot =  $1.590 \text{ (ms)} * (1600/(4*79)) * 31.6 = 254.4 \text{ (ms)}$

DH5 Time Slot =  $2.850 \text{ (ms)} * (1600/(6*79)) * 31.6 = 304.0 \text{ (ms)}$

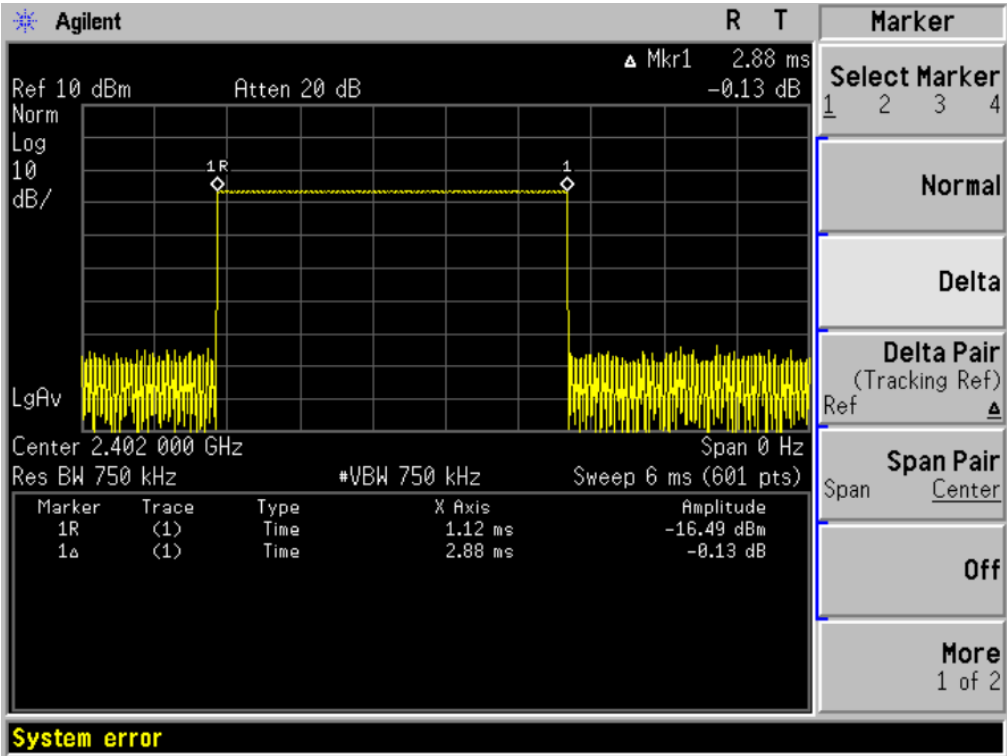
TEST PLOT DH1 MODE BOTTOM CHANNEL



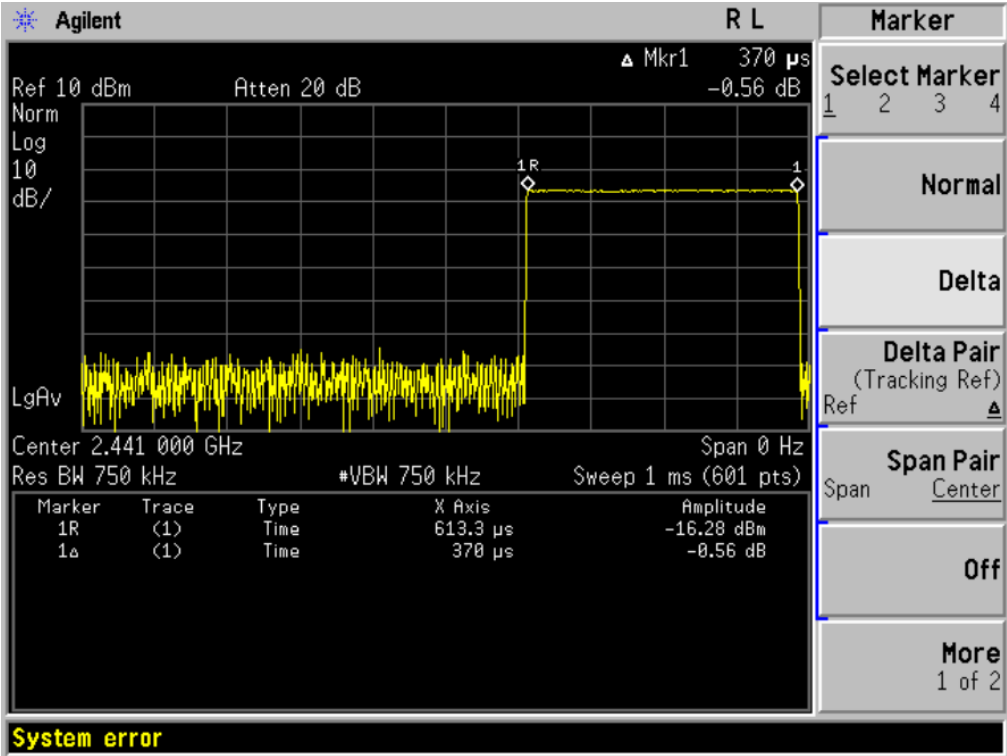
TEST PLOT DH3 MODE BOTTOM CHANNEL



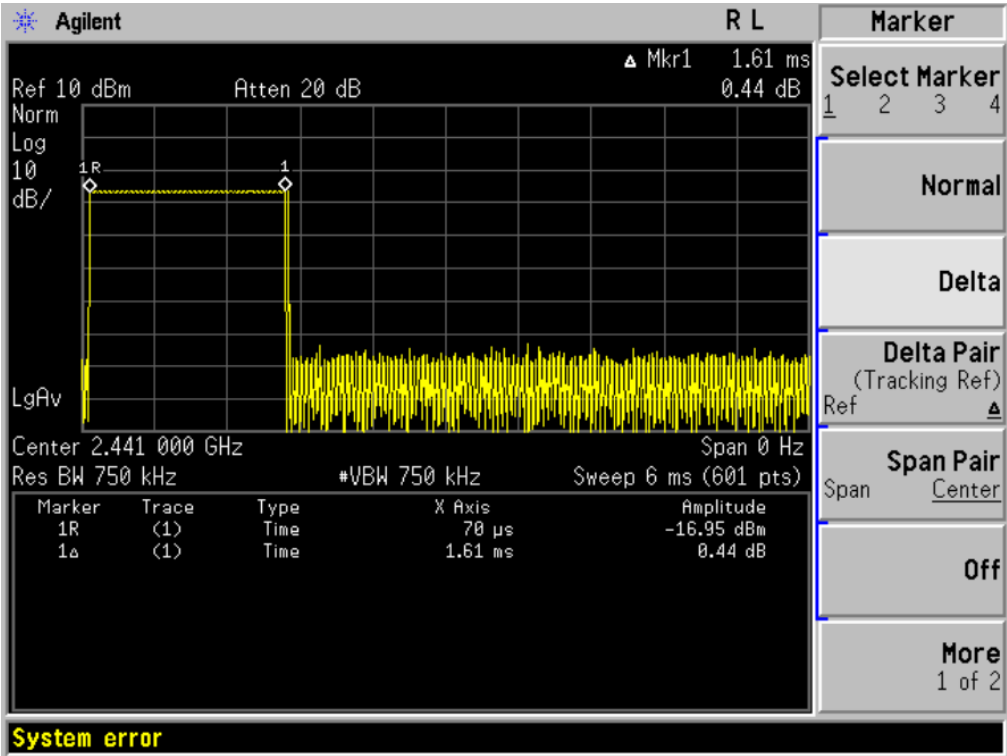
TEST PLOT DH5 MODE BOTTOM CHANNEL



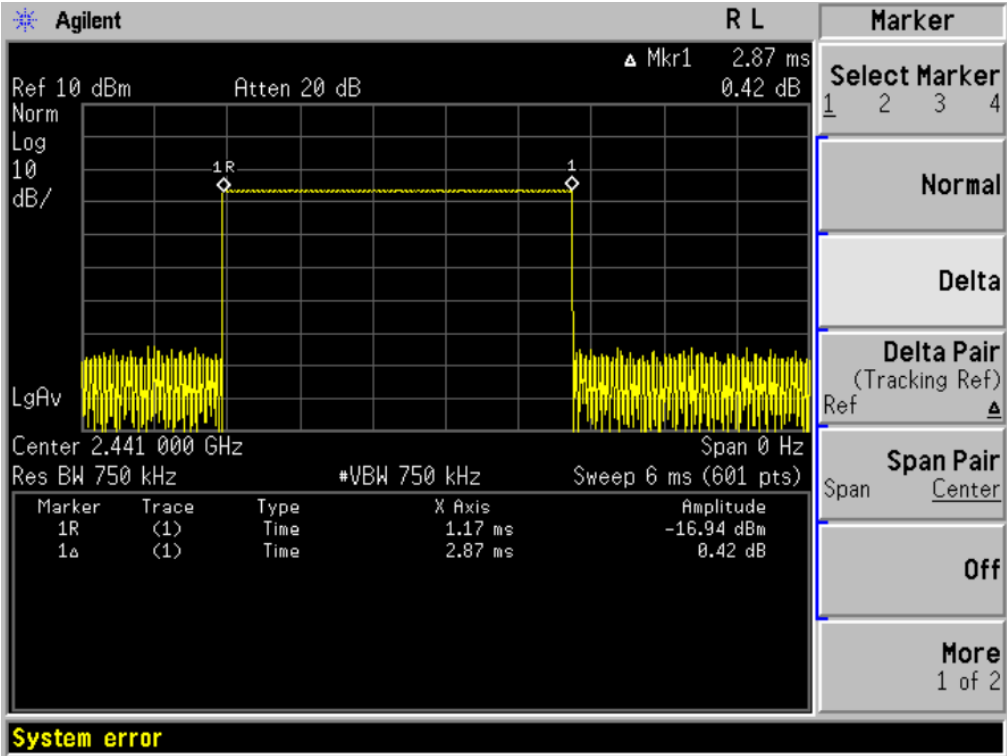
TEST PLOT DH1 MODE MIDDLE CHANNEL



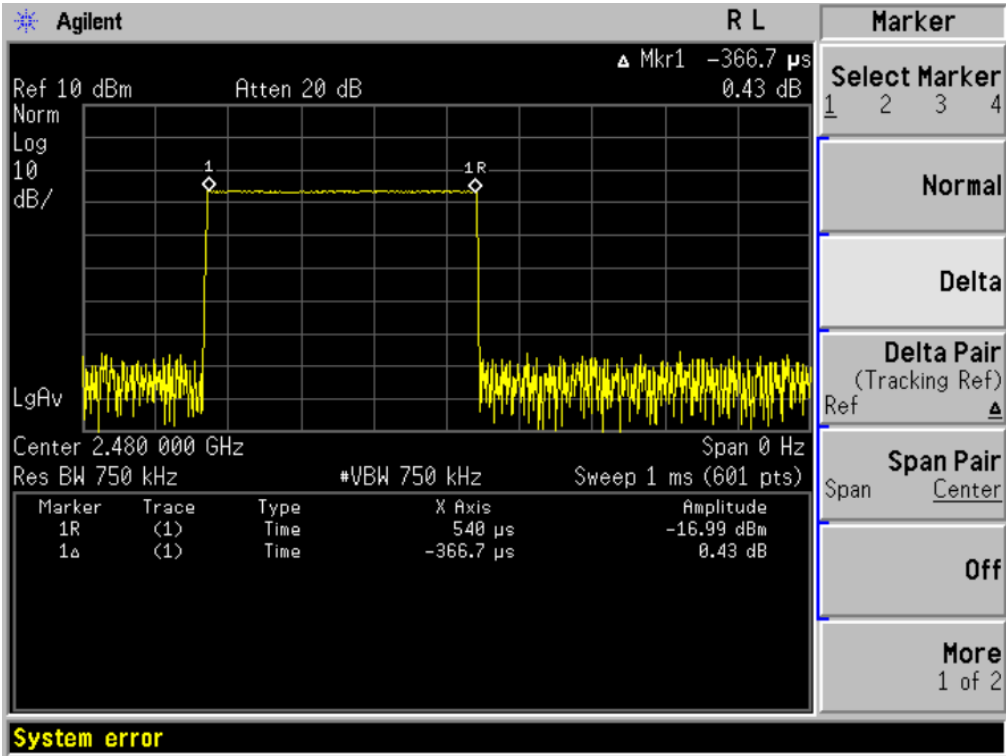
TEST PLOT DH3 MODE MIDDLE CHANNEL



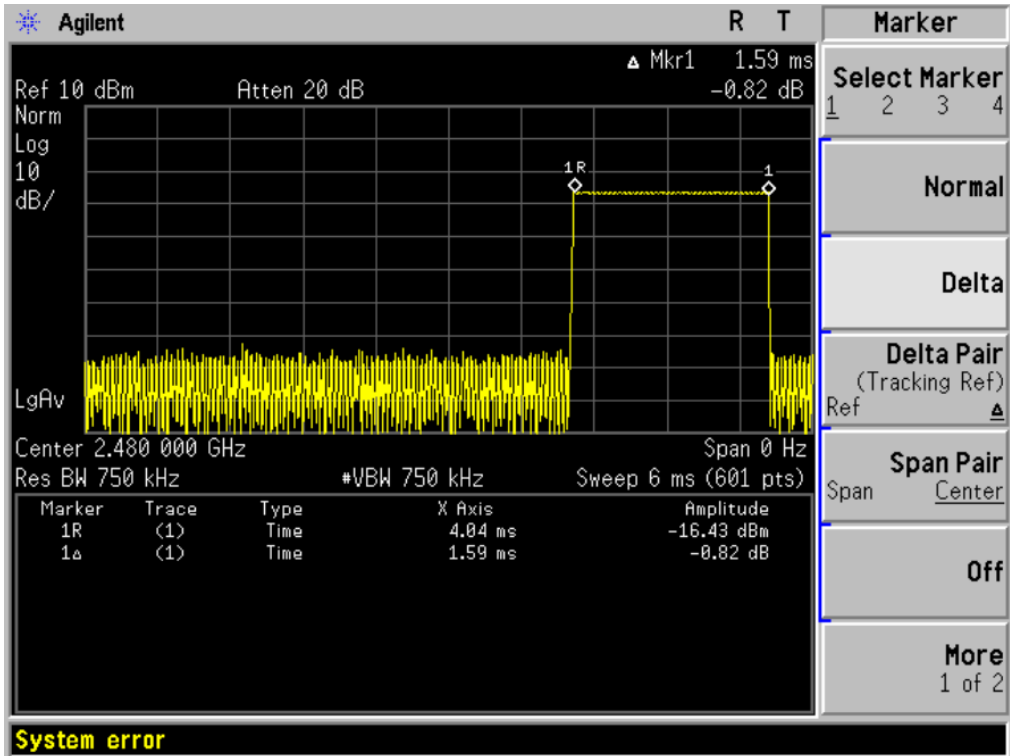
TEST PLOT DH5 MODE MIDDLE CHANNEL



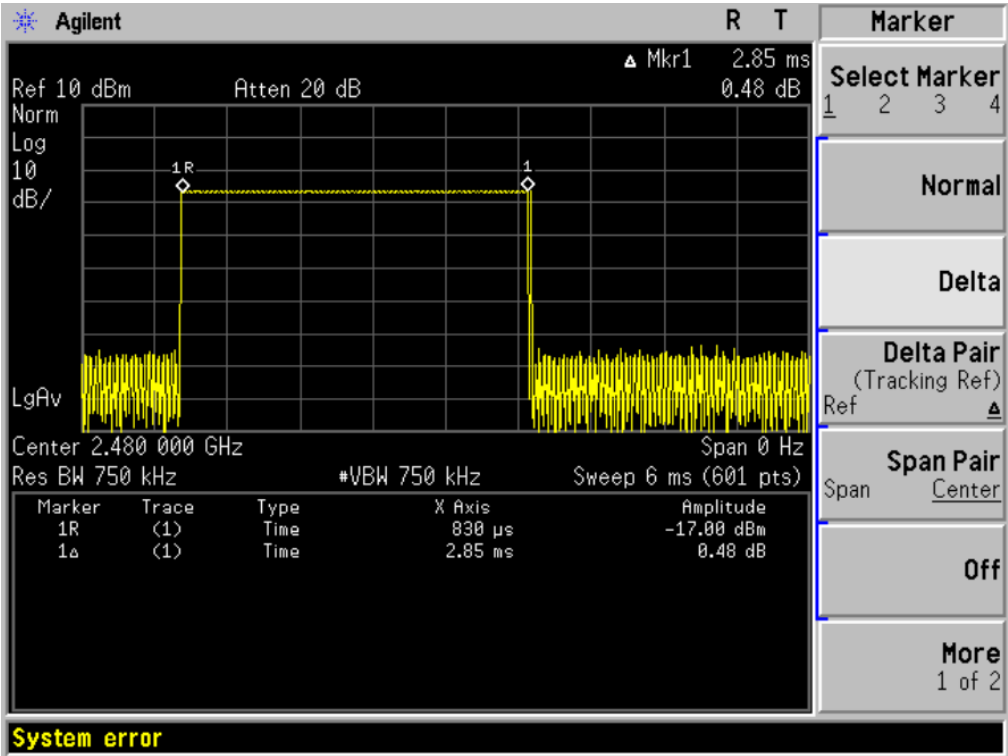
TEST PLOT DH1 MODE TOP CHANNEL



TEST PLOT DH3 MODE TOP CHANNEL



TEST PLOT DH5 MODE TOP CHANNEL



## 12. FREQUENCY SEPARATION

### 12.1 MEASUREMENT PROCEDURE

1. Place the EUT on the table and set it in transmitting mode
2. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum analyzer
3. Set center frequency of spectrum analyzer = Middle of Operating frequency
4. Set the spectrum analyzer as RBW, VBW=100KHz, Span = 5 MHz,

### 12.2 TEST SETUP (BLOCK DIAGRAM OF CONFIGURATION)

Same as described in section 6.2

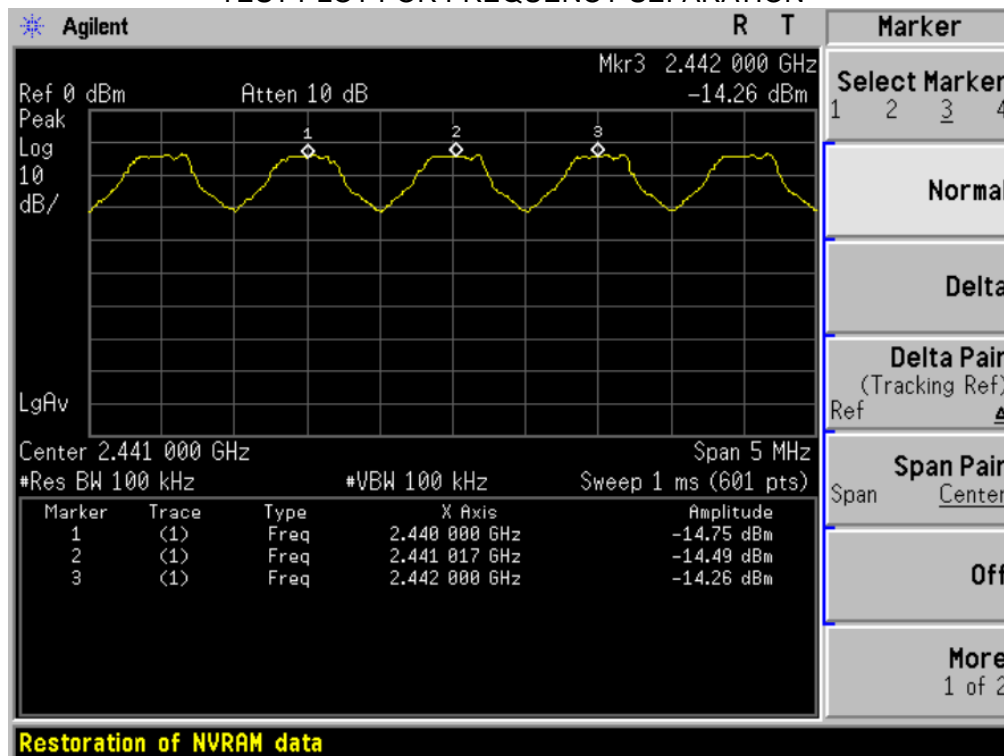
### 12.3 MEASUREMENT EQUIPMENT USED

The same as described in section 6.3

### 12.4 LIMITS AND MEASUREMENT RESULT

CHANNEL SEPARATION	LIMIT	RESULT
KHz	KHz	Pass
1000	$\geq 25$ KHz or 2/3 20 dB BW	

TEST PLOT FOR FREQUENCY SEPARATION





**APPENDIX I**  
**PHOTOGRAPHS OF THE EUT**  
TOP VIEW OF SAMPLE



BOTTOM VIEW OF SAMPLE



LEFT VIEW OF SAMPLE



RIGHT VIEW OF SAMPLE



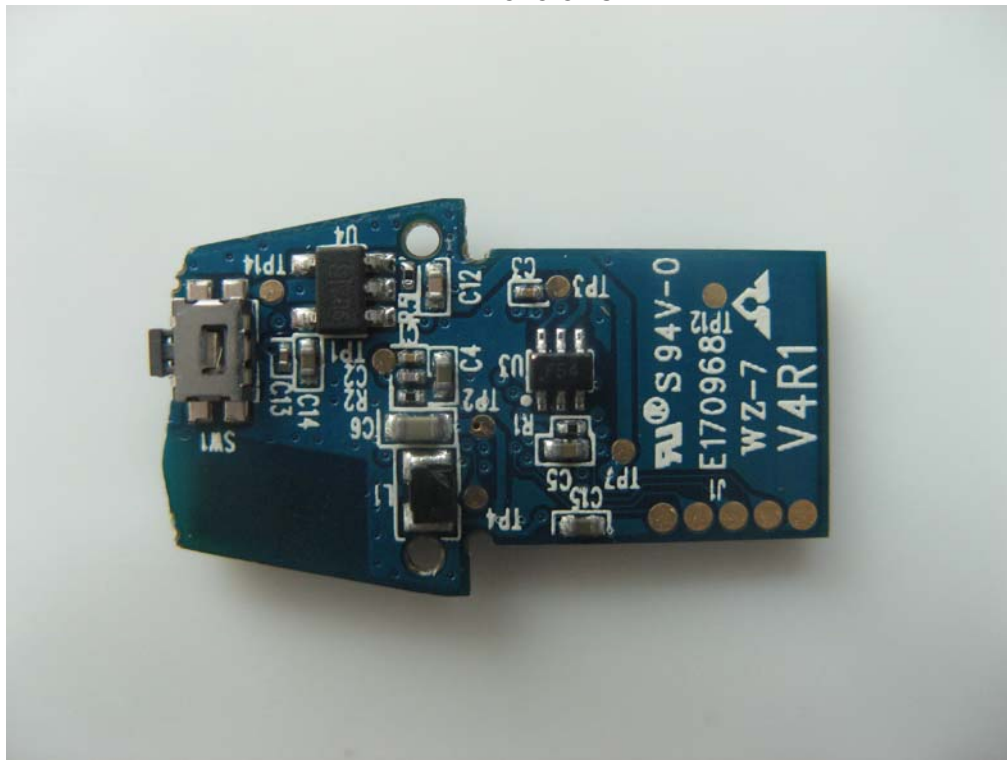
FRONT VIEW OF SAMPLE



BACK VIEW OF SAMPLE



INTERNAL PHOTO OF SAMPLE – 1



INTERNAL PHOTO OF SAMPLE – 2



**PPENDIX II**  
**PHOTOGRAPHS OF THE TEST SETUP**  
CONDUCTED EMISSION TEST



EIRP TEST SETUP



RADIATED EMISSION TEST SETUP



----END OF REPORT----