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FCC TEST REPORT (BLUETOOTH)

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MODEL NO.: T00D
FCC ID: MSQT00D
RECEIVED: Dec. 13, 2013
TESTED: Dec. 27, 2013 ~ Feb. 20, 2014
ISSUED: Feb. 27, 2014

APPLICANT: ASUSTek COMPUTER INC.

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ISSUED BY: Bureau Veritas Consumer Products Services
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TEST LOCATION: No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei
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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF131213C05-3	Original release	Feb. 27, 2014



1. CERTIFICATION

PRODUCT: PadFone X

MODEL NO.: T00D

BRAND: ASUS

APPLICANT: ASUSTek COMPUTER INC.

TESTED: Dec. 27, 2013 ~ Feb. 20, 2014

TEST SAMPLE: ENGINEERING SAMPLE

STANDARDS: **FCC Part 15, Subpart C (Section 15.247)**

ANSI C63.10-2009

The above equipment (model: T00D) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Evonne Liu , **DATE** : Feb. 27, 2014
Evonne Liu / Specialist

APPROVED BY : Sam Chen , **DATE** : Feb. 27, 2014
Sam Chen / Senior Project Engineer



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2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C (Bluetooth EDR)			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -1.91dB at 0.79063MHz.
15.247(a)(1) (iii)	Number of Hopping Frequency Used	PASS	Meet the requirement of limit.
15.247(a)(1) (iii)	Dwell Time on Each Channel	PASS	Meet the requirement of limit.
15.247(a)(1)	1. Hopping Channel Separation 2. Spectrum Bandwidth of a Frequency Hopping Sequence Spread Spectrum System	PASS	Meet the requirement of limit.
15.247(b)	Maximum Peak Output Power	PASS	Meet the requirement of limit.
15.247(d)	Transmitter Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -7.71dB at 95.61MHz.
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used.

NOTE: If The Frequency Hopping System operating in 2400-2483.5MHz band and the output power less than 125mW. The hopping channel carrier frequencies separated by a minimum of 25kHz or two-thirds of the 20dB bandwidth of hopping channel whichever is greater.



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APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247) (Bluetooth LE 4.0)			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -11.67dB at 13.56250MHz.
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -8.02dB at 96.42MHz.
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used.

2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	2.93 dB
	200MHz ~1000MHz	2.95 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.



3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	PadFone X	
MODEL NO.	T00D	
POWER SUPPLY	5.0Vdc (adapter or host equipment) 3.8Vdc (Li-ion battery)	
MODULATION TYPE	Bluetooth EDR	GFSK, $\pi/4$ -DQPSK, 8DPSK
	Bluetooth LE 4.0	GFSK
TRANSFER RATE	Bluetooth EDR	1/2/3Mbps
	Bluetooth LE 4.0	1Mbps
OPERATING FREQUENCY	2402 ~ 2480MHz	
NUMBER OF CHANNEL	Bluetooth EDR	79
	Bluetooth LE 4.0	40
CHANNEL SPACING	Bluetooth EDR	1MHz
	Bluetooth LE 4.0	2MHz
OUTPUT POWER	Bluetooth EDR	10.789mW
	Bluetooth LE 4.0	0.923mW
ANTENNA TYPE	PIFA antenna with 1dBi gain	
ANTENNA CONNECTOR	NA	
DATA CABLE	Refer to Note as below	
I/O PORTS	Refer to user's manual	
ACCESSORY DEVICES	Refer to Note as below	

**NOTE:**

1. The EUT contains following accessory devices.

ITEM	BRAND	MODEL	SPECIFICATION
AC Adapter 1	ASUS	AD897320	I/P: 100-240Vac, 50-60Hz, 0.3A O/P: 5Vdc, 2A
AC Adapter 2	ASUS	W12-010N3A	I/P: 100-240Vac, 50-60Hz, 0.3A O/P: 5Vdc, 2A
Li-ion Battery	ASUS	C11P1322	Rating: 3.8Vdc, 8.7Wh
Earphone 1	ASUS	OBOPRO2	1.27m cable
Earphone 2	ASUS	WW	1.25m cable
Earphone 3	ASUS	CHM-125STS02001	1.15m cable
USB cable 1	ASUS	AA780300	0.85m cable
USB cable 2	ASUS	L65U2008-CS-B	0.95m cable
USB cable 3	ASUS	CUHD003B-Y05-EF	0.95m cable
LCD Panel	SHARP	LS050T1SX04	--
Front Camera 1	AZWAVE	AM-2F024	--
Front Camera 2	Chicony	CCFD21220003871LH	--
Rear Camera	LARVIEW	CBAA0-010A	--
WLAN / BT Module	QUALCOMM	WIRELESS IC 79BWLNSP	--
PadFone X Station	ASUS	T00DP	--
Battery for PadFone X Station	ASUS	C11P1323	3.8Vdc, 19Wh

2. The configurations of the device listed as below.

SKU 1 (PadFone X): Phone (with Front Camera 1) + AC Adapter 2 + Earphone 2 + USB cable 2

SKU 2 (PadFone X Station):

Phone (with Front Camera 1) + Pad + AC Adapter 2 + Earphone 2 + USB cable 2

SKU 3 (PadFone X): Phone (with Front Camera 2) + AC Adapter 2 + Earphone 2 + USB cable 2

SKU 4 (PadFone X Station):

Phone (with Front Camera 2) + Pad + AC Adapter 2 + Earphone 2 + USB cable 2

3. The above EUT information is declared by the manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

FOR Bluetooth EDR:

79 channels are provided to this EUT:

CHANNEL	FREQ. (MHz)						
0	2402	20	2422	40	2442	60	2462
1	2403	21	2423	41	2443	61	2463
2	2404	22	2424	42	2444	62	2464
3	2405	23	2425	43	2445	63	2465
4	2406	24	2426	44	2446	64	2466
5	2407	25	2427	45	2447	65	2467
6	2408	26	2428	46	2448	66	2468
7	2409	27	2429	47	2449	67	2469
8	2410	28	2430	48	2450	68	2470
9	2411	29	2431	49	2451	69	2471
10	2412	30	2432	50	2452	70	2472
11	2413	31	2433	51	2453	71	2473
12	2414	32	2434	52	2454	72	2474
13	2415	33	2435	53	2455	73	2475
14	2416	34	2436	54	2456	74	2476
15	2417	35	2437	55	2457	75	2477
16	2418	36	2438	56	2458	76	2478
17	2419	37	2439	57	2459	77	2479
18	2420	38	2440	58	2460	78	2480
19	2421	39	2441	59	2461		

FOR Bluetooth LE 4.0:

40 channels are provided to this EUT:

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

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

FOR Bluetooth EDR:

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE \geq 1G	RE $<$ 1G	PLC	APCM	
A	√	√	√	√	SKU 1 (PadFone X)
B	√	√	√	-	SKU 2 (PadFone X Station)
C	√	√	-	-	SKU 3 (PadFone X)
D	√	√	-	-	SKU 4 (PadFone X Station)

Where **RE \geq 1G**: Radiated Emission above 1GHz **RE $<$ 1G**: Radiated Emission below 1GHz
PLC: Power Line Conducted Emission **APCM**: Antenna Port Conducted Measurement

NOTE: 1. For Radiated emission test, pre-tested GFSK, $\pi/4$ -DQPSK, 8DPSK modulation type and found 8DPSK was the worse, therefore chosen for the final test and presented in the test report.

2. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane** for Mode A-C and **Y-plane** for Mode D.

RADIATED EMISSION TEST (ABOVE 1GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE	PACKET TYPE
A	0 to 78	0, 39, 78	8DPSK	DH5
B, C, D	0 to 78	78	8DPSK	DH5

RADIATED EMISSION TEST (BELOW 1GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE	PACKET TYPE
A	0 to 78	0	8DPSK	DH5
B, C, D	0 to 78	78	8DPSK	DH5



POWER LINE CONDUCTED EMISSION TEST:

EUT CONFIGURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE	PACKET TYPE
A	0 to 78	0	8DPSK	DH5
B	0 to 78	78	8DPSK	DH5

ANTENNA PORT CONDUCTED MEASUREMENT:

- This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE	PACKET TYPE
A	0 to 78	0, 39, 78	GFSK	DH5
	0 to 78	0, 39, 78	$\pi/4$ -DQPSK	DH5
	0 to 78	0, 39, 78	8DPSK	DH5

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE \geq 1G	25deg. C, 65%RH	120Vac, 60Hz	Kay Wu / Anson Lin
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Kay Wu / Anson Lin
PLC	25deg. C, 65%RH	120Vac, 60Hz	Johnson Liao
APCM	25deg. C, 65%RH	120Vac, 60Hz	Demon Lin



FOR Bluetooth LE 4.0:

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	SKU 1 (PadFone X)
B	√	√	-	-	SKU 2 (PadFone X Station)
C	√	√	-	-	SKU 3 (PadFone X)
D	√	√	-	-	SKU 4 (PadFone X Station)

Where **RE≥1G**: Radiated Emission above 1GHz **RE<1G**: Radiated Emission below 1GHz
PLC: Power Line Conducted Emission **APCM**: Antenna Port Conducted Measurement

NOTE: The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane** for Mode A-B and **Y-plane** for Mode C-D.

RADIATED EMISSION TEST (ABOVE 1GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE	DATA RATE (Mbps)
A	0 to 39	0, 19, 39	GFSK	1.0
B, C, D	0 to 39	39	GFSK	1.0

RADIATED EMISSION TEST (BELOW 1GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE	DATA RATE (Mbps)
A	0 to 39	0	GFSK	1.0
B, C, D	0 to 39	39	GFSK	1.0



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POWER LINE CONDUCTED EMISSION TEST:

EUT CONFIGURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE	DATA RATE (Mbps)
A	0 to 39	0	GFSK	1.0

ANTENNA PORT CONDUCTED MEASUREMENT:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE	DATA RATE (Mbps)
A	0 to 39	0, 19, 39	GFSK	1.0

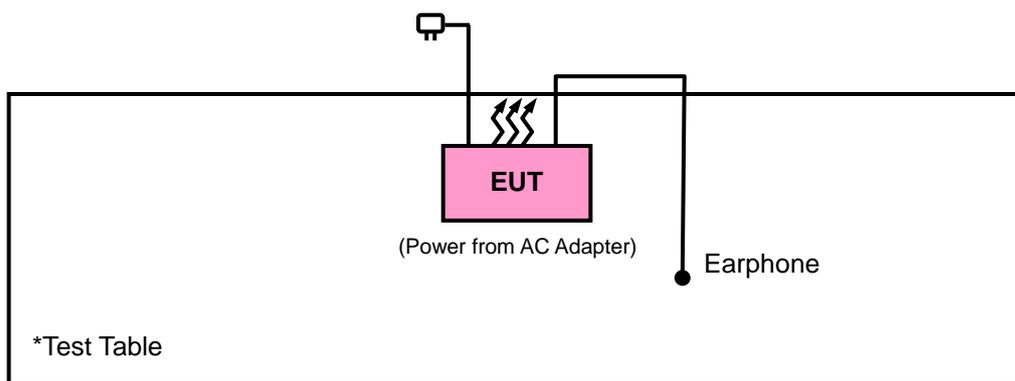
TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE \geq 1G	25deg. C, 65%RH	120Vac, 60Hz	Kay Wu / Anson Lin
RE $<$ 1G	25deg. C, 65%RH	120Vac, 60Hz	Kay Wu / Anson Lin
PLC	25deg. C, 65%RH	120Vac, 60Hz	Johnson Liao
APCM	25deg. C, 65%RH	120Vac, 60Hz	Demon Lin

3.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units.

3.3.1 CONFIGURATION OF SYSTEM UNDER TEST



3.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C (15.247)

ANSI C63.10-2009

558074 D01 DTS Meas Guidance v03r01

FCC Public Notice DA 00-705

All test items have been performed and recorded as per the above standards.

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

4. TEST TYPES AND RESULTS (FOR BLUETOOTH EDR)

4.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power:

FREQUENCIES (MHz)	FIELD STRENGTH (microvolts/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

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.



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4.1.2 TEST INSTRUMENTS

Test Date: Dec. 27, 2013 ~ Feb. 20, 2014

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCI	100744	Apr. 15, 2013	Apr. 14, 2014
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 21, 2013	Dec. 20, 2014
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Mar. 25, 2013	Mar. 24, 2014
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-405	Feb. 21, 2013	Feb. 20, 2014
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Dec. 18, 2013	Dec. 17, 2014
Preamplifier EMCI	EMC0126545	980076	Feb. 27, 2013	Feb. 26, 2014
Preamplifier EMCI	EMC 330H	980071	Feb. 27, 2013	Feb. 26, 2014
Preamplifier EMCI	EMC 330H	980112	Dec. 27, 2013	Dec. 26, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309219/4	Oct. 18, 2013	Oct. 17, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250130/4	Oct. 18, 2013	Oct. 17, 2014
RF signal cable Worken	RG-213	NA	Nov. 07, 2013	Nov. 06, 2014
Software BV ADT	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower & Turn Table Controller MF	MF-7802	NA	NA	NA
Bluetooth Tester	CBT	100980	Apr. 18, 2013	Apr. 17, 2014
Power Meter	ML2495A	1232002	Aug. 23, 2013	Aug. 22, 2014
Power Sensor	MA2411B	1207325	Aug. 23, 2013	Aug. 22, 2014

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The calibration interval of the loop antenna is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
 3. The test was performed in HwaYa Chamber 10.
 4. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 5. The FCC Site Registration No. is 690701.
 6. The IC Site Registration No. is IC 7450F-10.

4.1.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

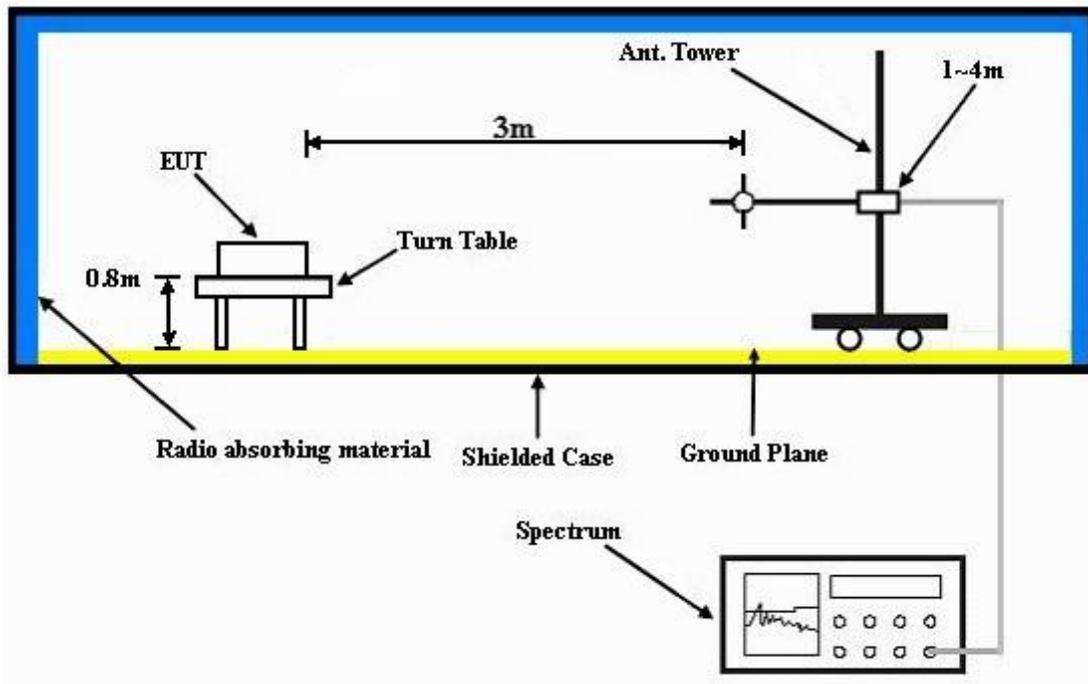
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection (AV) at frequency above 1GHz.

4.1.4 DEVIATION FROM TEST STANDARD

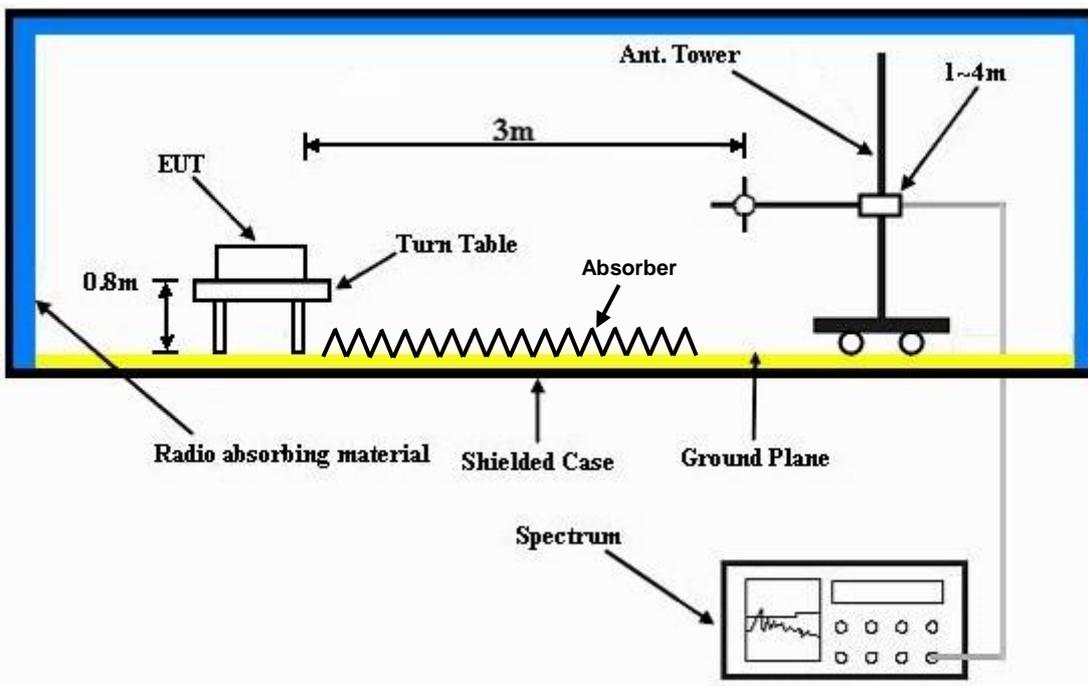
No deviation.

4.1.5 TEST SETUP

Frequency Range 30MHz ~ 1GHz



Frequency Range above 1GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).



A D T

4.1.6 EUT OPERATING CONDITIONS

- a. Placed the EUT on a testing table.
- b. Use the software to control the EUT under transmission condition continuously at specific channel frequency.



A D T

4.1.7 TEST RESULTS

Mode A

ABOVE 1GHz WORST-CASE DATA

8DPSK

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 0	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2346	39.8	38.1	54	-14.2	31.87	5.33	35.5	168	4	Average
2346	54.49	52.79	74	-19.51	31.87	5.33	35.5	168	4	Peak
2402	98.24	96.35			31.96	5.4	35.47	168	4	Average
2402	104.27	102.38			31.96	5.4	35.47	168	4	Peak
2484	40.15	37.97	54	-13.85	32.1	5.5	35.42	168	4	Average
2484	54.7	52.52	74	-19.3	32.1	5.5	35.42	168	4	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2370	40.49	38.71	54	-13.51	31.9	5.37	35.49	138	26	Average
2370	55.52	53.74	74	-18.48	31.9	5.37	35.49	138	26	Peak
2402	96.92	95.03			31.96	5.4	35.47	138	26	Average
2402	102.72	100.83			31.96	5.4	35.47	138	26	Peak
2498	39.79	37.57	54	-14.21	32.1	5.53	35.41	138	26	Average
2498	55.07	52.85	74	-18.93	32.1	5.53	35.41	138	26	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2402MHz: Fundamental frequency.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 39	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2364	40.82	39.05	54	-13.18	31.9	5.37	35.5	200	0	Average
2364	57.47	55.7	74	-16.53	31.9	5.37	35.5	200	0	Peak
2441	98.03	96			32.01	5.46	35.44	200	0	Average
2441	104.65	102.62			32.01	5.46	35.44	200	0	Peak
2494	39.78	37.56	54	-14.22	32.1	5.53	35.41	200	0	Average
2494	55.92	53.7	74	-18.08	32.1	5.53	35.41	200	0	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2376	39.93	38.15	54	-14.07	31.9	5.37	35.49	135	24	Average
2376	55.42	53.64	74	-18.58	31.9	5.37	35.49	135	24	Peak
2441	96	93.97			32.01	5.46	35.44	135	24	Average
2441	101.88	99.85			32.01	5.46	35.44	135	24	Peak
2484	40.17	37.99	54	-13.83	32.1	5.5	35.42	135	24	Average
2484	55.18	53	74	-18.82	32.1	5.5	35.42	135	24	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2441MHz: Fundamental frequency.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 78	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2378	39.38	37.6	54	-14.62	31.9	5.37	35.49	191	3	Average
2378	55.25	53.47	74	-18.75	31.9	5.37	35.49	191	3	Peak
2480	98.92	96.77			32.07	5.5	35.42	191	3	Average
2480	104.22	102.07			32.07	5.5	35.42	191	3	Peak
2484	41.15	38.97	54	-12.85	32.1	5.5	35.42	191	3	Average
2484	55.21	53.03	74	-18.79	32.1	5.5	35.42	191	3	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2350	39.76	38.06	54	-14.24	31.87	5.33	35.5	104	19	Average
2350	54.93	53.23	74	-19.07	31.87	5.33	35.5	104	19	Peak
2480	96.13	93.98			32.07	5.5	35.42	104	19	Average
2480	102.51	100.36			32.07	5.5	35.42	104	19	Peak
2494	40.19	37.97	54	-13.81	32.1	5.53	35.41	104	19	Average
2494	55.47	53.25	74	-18.53	32.1	5.53	35.41	104	19	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
2. 2480MHz: Fundamental frequency.



BELOW 1GHz WORST-CASE DATA:

8DPSK

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 0	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
58.35	20.83	45.21	40	-19.17	6.95	0.9	32.23	156	221	Peak
95.61	35.79	57.21	43.5	-7.71	9.34	1.28	32.04	105	216	Peak
204.69	29.89	49.44	43.5	-13.61	11.08	1.65	32.28	166	203	Peak
396.6	22.52	34.45	46	-23.48	17.95	2.34	32.22	166	219	Peak
470.1	21.13	31.98	46	-24.87	18.72	2.56	32.13	107	102	Peak
743.8	25.93	31.64	46	-20.07	23.27	3.16	32.14	155	220	Peak

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
46.74	20.77	43.27	40	-19.23	8.82	0.9	32.22	166	225	Peak
94.53	35.56	57.18	43.5	-7.94	9.26	1.11	31.99	103	20	Peak
153.39	14.04	34.46	43.5	-29.46	10.33	1.52	32.27	188	152	Peak
435.1	19.6	31.44	46	-26.4	17.84	2.49	32.17	155	216	Peak
547.1	22.05	31.14	46	-23.95	20.34	2.76	32.19	102	156	Peak
673.1	26.02	31.69	46	-19.98	23.4	3.05	32.12	104	154	Peak

REMARKS: Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
 Margin value = Emission level – Limit value



A D T

Mode B

ABOVE 1GHz WORST-CASE DATA

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 78	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2356	39.28	37.54	54	-14.72	31.87	5.37	35.5	128	251	Average
2356	56.46	54.72	74	-17.54	31.87	5.37	35.5	128	251	Peak
2480	97.87	95.72			32.07	5.5	35.42	128	251	Average
2480	103.28	101.13			32.07	5.5	35.42	128	251	Peak
2484	40.34	38.16	54	-13.66	32.1	5.5	35.42	128	251	Average
2484	59.64	57.46	74	-14.36	32.1	5.5	35.42	128	251	Peak

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2330	39.23	37.58	54	-14.77	31.84	5.33	35.52	105	96	Average
2330	55.09	53.44	74	-18.91	31.84	5.33	35.52	105	96	Peak
2480	97.53	95.38			32.07	5.5	35.42	105	96	Average
2480	102.95	100.8			32.07	5.5	35.42	105	96	Peak
2484	40.3	38.12	54	-13.7	32.1	5.5	35.42	105	96	Average
2484	58.25	56.07	74	-15.75	32.1	5.5	35.42	105	96	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2480MHz: Fundamental frequency.



A D T

BELOW 1GHz WORST-CASE DATA:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 78	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
90.48	29.79	51.45	43.5	-13.71	8.94	1.11	31.71	141	74	Peak
120.45	24.88	47.12	43.5	-18.62	8.73	1.28	32.25	123	355	Peak
173.91	25.48	45.96	43.5	-18.02	10.15	1.61	32.24	251	23	Peak
400.1	23.36	35.14	46	-22.64	18.1	2.34	32.22	100	123	Peak
582.1	23.31	32.34	46	-22.69	20.35	2.82	32.2	145	57	Peak
795.6	25.86	30.24	46	-20.14	24.42	3.27	32.07	100	199	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
30.81	30.73	45.06	40	-9.27	17.19	0.74	32.26	100	311	Peak
72.66	29.54	52.47	40	-10.46	8.18	1.11	32.22	100	198	Peak
179.04	17.52	37.79	43.5	-25.98	10.36	1.61	32.24	100	158	Peak
400.1	22.46	34.24	46	-23.54	18.1	2.34	32.22	100	133	Peak
608	24.08	32.01	46	-21.92	21.39	2.87	32.19	100	58	Peak
792.1	26.15	30.72	46	-19.85	24.23	3.27	32.07	100	0	Peak

REMARKS: Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
 Margin value = Emission level – Limit value



A D T

Mode C

ABOVE 1GHz WORST-CASE DATA

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 78	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Anson Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2378	33.94	39.71	54	-20.06	28.21	3.52	37.5	128	299	Average
2378	47.87	53.64	74	-26.13	28.21	3.52	37.5	128	299	Peak
2480	94.6	99.95			28.37	3.6	37.32	128	299	Average
2480	100.64	105.99			28.37	3.6	37.32	128	299	Peak
2484	35.16	40.51	54	-18.84	28.37	3.6	37.32	128	299	Average
2484	54.23	59.58	74	-19.77	28.37	3.6	37.32	128	299	Peak

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2344	33.84	39.68	54	-20.16	28.15	3.5	37.49	100	67	Average
2344	47.09	52.93	74	-26.91	28.15	3.5	37.49	100	67	Peak
2480	86.21	91.56			28.37	3.6	37.32	100	67	Average
2480	92.74	98.09			28.37	3.6	37.32	100	67	Peak
2484	34.42	39.77	54	-19.58	28.37	3.6	37.32	100	67	Average
2484	49.7	55.05	74	-24.3	28.37	3.6	37.32	100	67	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2480MHz: Fundamental frequency.



A D T

BELOW 1GHz WORST-CASE DATA:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 78	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Anson Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
56.19	18.63	36.82	40	-21.37	12.35	0.8	31.34	100	302	Peak
137.73	15.35	33.55	43.5	-28.15	12.21	1.28	31.69	100	154	Peak
276.78	16.21	33.92	46	-29.79	12.25	1.94	31.9	100	168	Peak
390.3	22.76	37.32	46	-23.24	15.1	2.38	32.04	100	206	Peak
597.5	23.44	33.04	46	-22.56	19.54	3.08	32.22	100	114	Peak
865.6	27.71	32.74	46	-18.29	23.06	3.86	31.95	100	152	Peak

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
56.19	18.46	36.65	40	-21.54	12.35	0.8	31.34	100	207	Peak
156.36	15.56	33.24	43.5	-27.94	12.72	1.37	31.77	100	118	Peak
269.22	14.73	32.8	46	-31.27	12.05	1.91	32.03	100	162	Peak
493.9	22.1	33.86	46	-23.9	17.2	2.76	31.72	100	150	Peak
694.1	25.2	32.86	46	-20.8	20.75	3.41	31.82	100	232	Peak
888	28.06	32.76	46	-17.94	23.36	3.93	31.99	100	124	Peak

REMARKS: Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor

Margin value = Emission level – Limit value



A D T

Mode D

ABOVE 1GHz WORST-CASE DATA

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 78	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Anson Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2358	33.85	39.66	54	-20.15	28.18	3.5	37.49	118	197	Average
2358	47.21	53.02	74	-26.79	28.18	3.5	37.49	118	197	Peak
2480	89.14	94.49			28.37	3.6	37.32	118	197	Average
2480	95.7	101.05			28.37	3.6	37.32	118	197	Peak
2484	34.57	39.92	54	-19.43	28.37	3.6	37.32	118	197	Average
2484	50.83	56.18	74	-23.17	28.37	3.6	37.32	118	197	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2328	33.79	39.66	54	-20.21	28.12	3.48	37.47	101	133	Average
2328	47.08	52.95	74	-26.92	28.12	3.48	37.47	101	133	Peak
2480	86.31	91.66			28.37	3.6	37.32	101	133	Average
2480	92.16	97.51			28.37	3.6	37.32	101	133	Peak
2484	34.36	39.71	54	-19.64	28.37	3.6	37.32	101	133	Average
2484	49.33	54.68	74	-24.67	28.37	3.6	37.32	101	133	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2480MHz: Fundamental frequency.



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BELOW 1GHz WORST-CASE DATA:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 78	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Anson Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
97.23	16.66	38.74	43.5	-26.84	8.83	1.05	31.96	100	164	Peak
146.91	17.83	35.51	43.5	-25.67	12.61	1.33	31.62	100	84	Peak
243.3	16.95	35.79	46	-29.05	11.19	1.81	31.84	100	241	Peak
498.1	21.8	33.39	46	-24.2	17.29	2.77	31.65	100	248	Peak
727	26.6	33.5	46	-19.4	21.2	3.51	31.61	100	153	Peak
942.6	28.17	32.26	46	-17.83	23.75	4.06	31.9	100	188	Peak

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
41.34	25.84	42.65	40	-14.16	13.56	0.68	31.05	100	227	Peak
165	14.27	32.41	43.5	-29.23	12.25	1.42	31.81	100	160	Peak
260.04	14.67	32.89	46	-31.33	11.77	1.86	31.85	100	341	Peak
432.3	19.66	33.14	46	-26.34	15.98	2.55	32.01	100	193	Peak
654.2	24.57	33.03	46	-21.43	20.27	3.26	31.99	100	277	Peak
894.3	28.54	33.15	46	-17.46	23.44	3.95	32	100	123	Peak

REMARKS: Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor

Margin value = Emission level – Limit value



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4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB μ V)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 30	60	50

- NOTE:** 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.
3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100288	Nov. 17, 2013	Nov. 16, 2014
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 27, 2013	Dec. 26, 2014
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Dec. 23, 2013	Dec. 22, 2014
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Jul. 08, 2013	Jul. 07, 2014
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Shielded Room 2.
3. The VCCI Site Registration No. is C-2047.



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4.2.3 TEST PROCEDURES

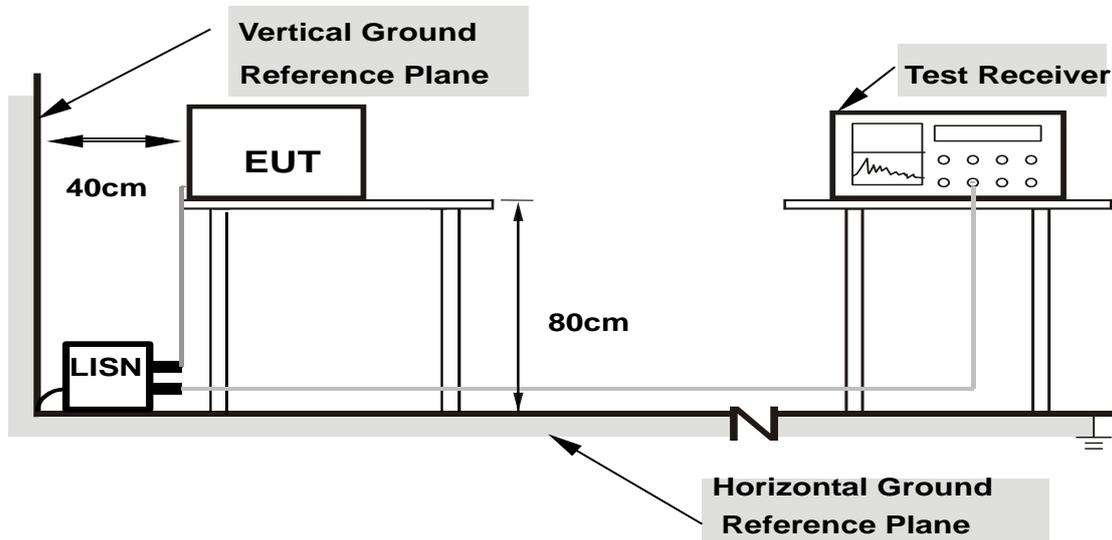
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

NOTE: All modes of operation were investigated and the worst-case emissions are reported.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST SETUP



- Note:**
1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

4.2.7 TEST RESULTS

Mode A

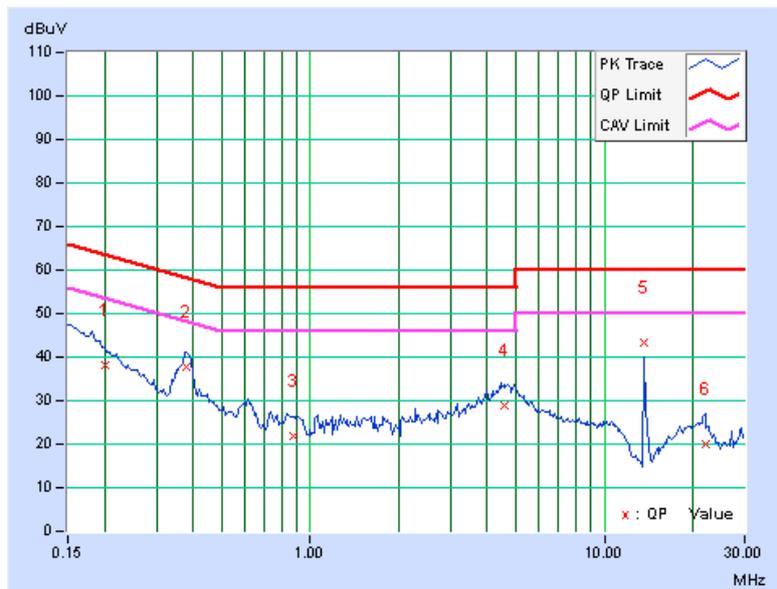
CONDUCTED WORST-CASE DATA :

PHASE	Line 1	6dB BANDWIDTH	9kHz
--------------	--------	----------------------	------

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.20078	0.17	38.11	25.98	38.28	26.15	63.58	53.58	-25.30	-27.43
2	0.38047	0.21	37.45	33.74	37.66	33.95	58.27	48.27	-20.61	-14.32
3	0.87656	0.26	21.70	17.72	21.96	17.98	56.00	46.00	-34.04	-28.02
4	4.55078	0.38	28.65	19.15	29.03	19.53	56.00	46.00	-26.97	-26.47
5	13.56250	0.50	42.66	37.85	43.16	38.35	60.00	50.00	-16.84	-11.65
6	22.09375	0.62	19.55	12.03	20.17	12.65	60.00	50.00	-39.83	-37.35

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

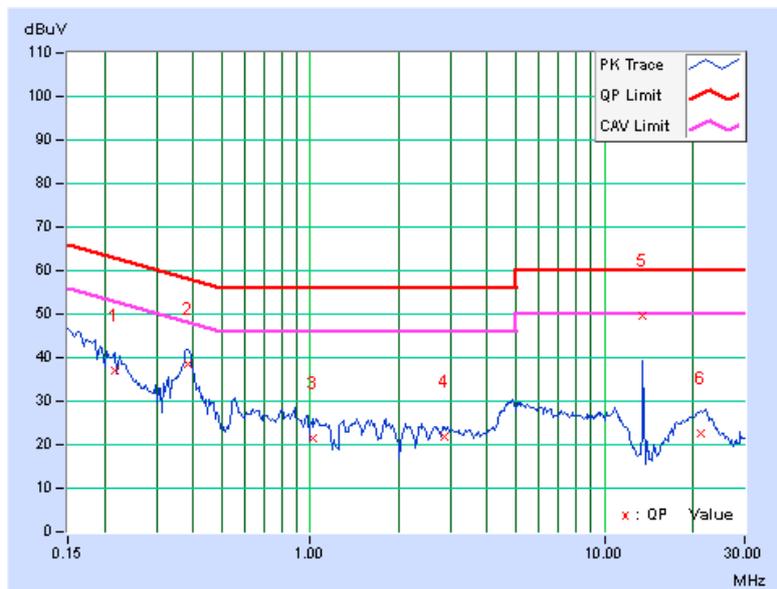


PHASE	Line 2	6dB BANDWIDTH	9kHz
-------	--------	---------------	------

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.21641	0.19	36.67	24.87	36.86	25.06	62.96
2	0.38438	0.24	38.23	34.42	38.47	34.66	58.18	48.18	-19.71	-13.52
3	1.01563	0.23	21.11	12.67	21.34	12.90	56.00	46.00	-34.66	-33.10
4	2.84766	0.33	21.64	16.78	21.97	17.11	56.00	46.00	-34.03	-28.89
5	13.55859	0.57	48.88	41.39	49.45	41.96	60.00	50.00	-10.55	-8.04
6	21.28516	0.72	21.99	15.41	22.71	16.13	60.00	50.00	-37.29	-33.87

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



Mode B

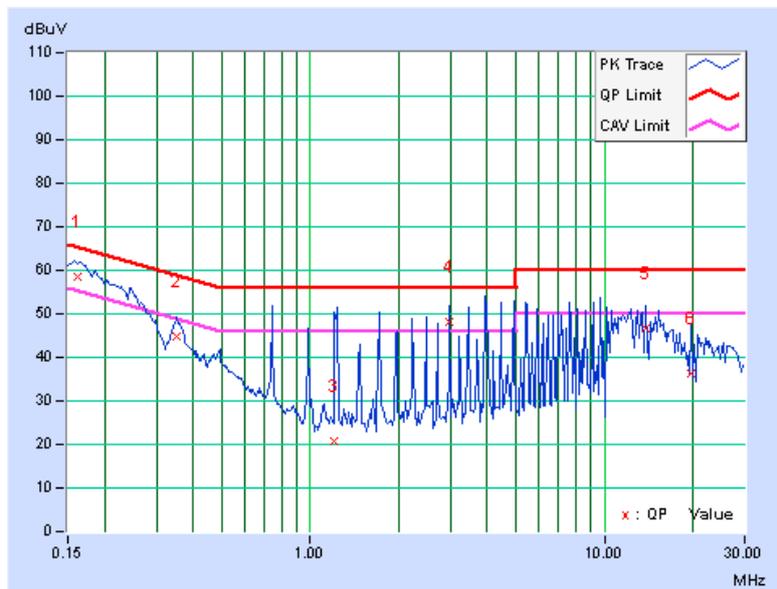
CONDUCTED WORST-CASE DATA :

PHASE	Line 1	6dB BANDWIDTH	9kHz
--------------	--------	----------------------	------

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16172	0.14	58.43	43.77	58.57	43.91	65.38	55.38	-6.81	-11.47
2	0.35313	0.15	44.76	30.79	44.91	30.94	58.89	48.89	-13.98	-17.95
3	1.20703	0.18	20.68	10.94	20.86	11.12	56.00	46.00	-35.14	-34.88
4	2.96094	0.26	47.85	43.56	48.11	43.82	56.00	46.00	-7.89	-2.18
5	13.83203	0.85	46.00	40.94	46.85	41.79	60.00	50.00	-13.15	-8.21
6	19.76953	1.18	35.25	28.32	36.43	29.50	60.00	50.00	-23.57	-20.50

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

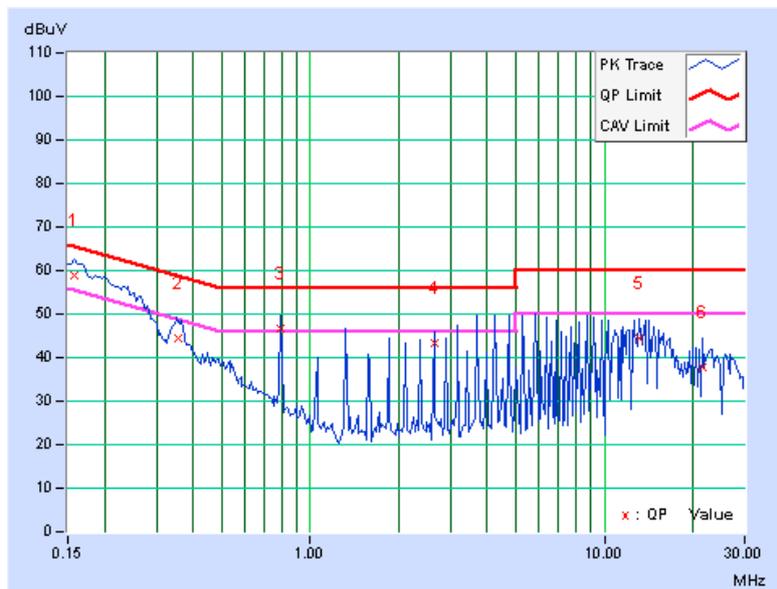


PHASE	Line 2	6dB BANDWIDTH	9kHz
-------	--------	---------------	------

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.15781	0.11	58.64	43.95	58.75	44.06	65.58
2	0.35703	0.12	44.15	31.61	44.27	31.73	58.80	48.80	-14.53	-17.07
3	0.79063	0.13	46.62	43.96	46.75	44.09	56.00	46.00	-9.25	-1.91
4	2.63672	0.20	43.19	39.59	43.39	39.79	56.00	46.00	-12.61	-6.21
5	13.19531	0.56	43.76	38.62	44.32	39.18	60.00	50.00	-15.68	-10.82
6	21.65234	0.78	37.15	30.94	37.93	31.72	60.00	50.00	-22.07	-18.28

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

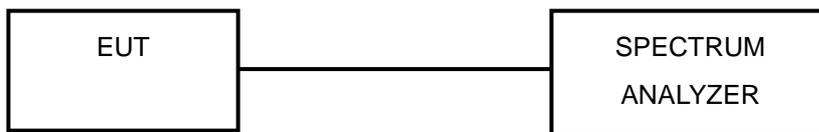


4.3 NUMBER OF HOPPING FREQUENCY USED

4.3.1 LIMIT OF HOPPING FREQUENCY USED

At least 15 channels frequencies, and should be equally spaced.

4.3.2 TEST SETUP



4.3.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.3.4 TEST PROCEDURE

- a. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
- b. Turn on the EUT and connect its antenna terminal to measurement 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.
- c. Set the SA on MaxHold Mode, and then keep the EUT in hopping mode. Record all the signals from each channel until each one has been recorded.
- d. Set the SA on View mode and then plot the result on SA screen.
- e. Repeat above procedures until all frequencies measured were complete.

4.3.5 DEVIATION FROM TEST STANDARD

No deviation.

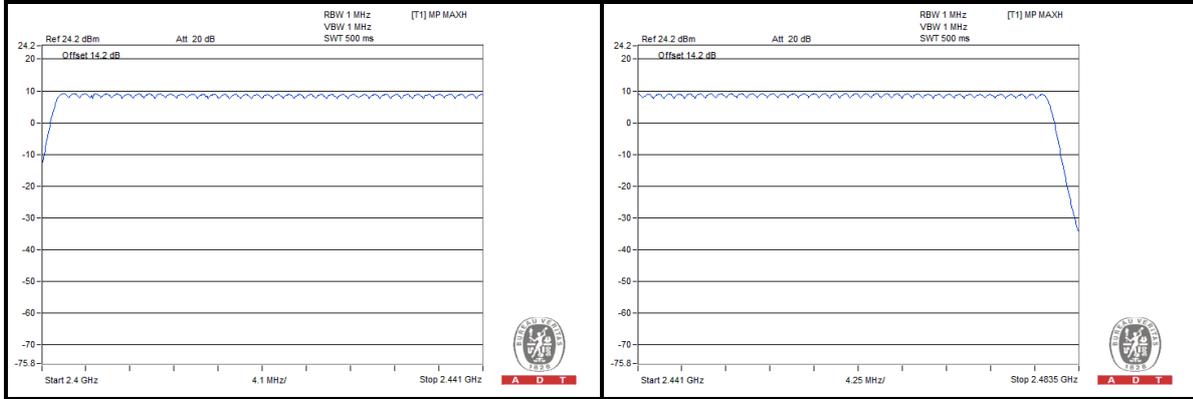
4.3.6 TEST RESULTS

There are 79 hopping frequencies in the hopping mode. Please refer to next page for the test result. On the plot, it shows that the hopping frequencies are equally spaced.



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8DPSK

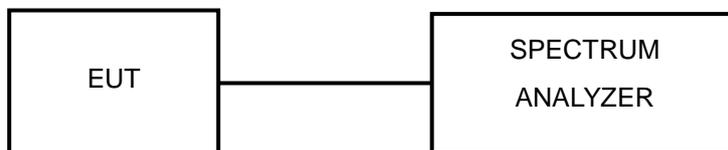


4.4 DWELL TIME ON EACH CHANNEL

4.4.1 LIMITS OF DWELL TIME USED

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

4.4.2 TEST SETUP



4.4.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.4.4 TEST PROCEDURES

- a. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
- b. Turn on the EUT and connect its antenna terminal to measurement 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.
- c. Adjust the center frequency of SA on any frequency be measured and set SA to zero span mode. And then, set RBW and VBW of spectrum analyzer to proper value.
- d. Measure the time duration of one transmission on the measured frequency. And then plot the result with time difference of this time duration.
- e. Repeat above procedures until all different time-slot modes have been completed.

4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

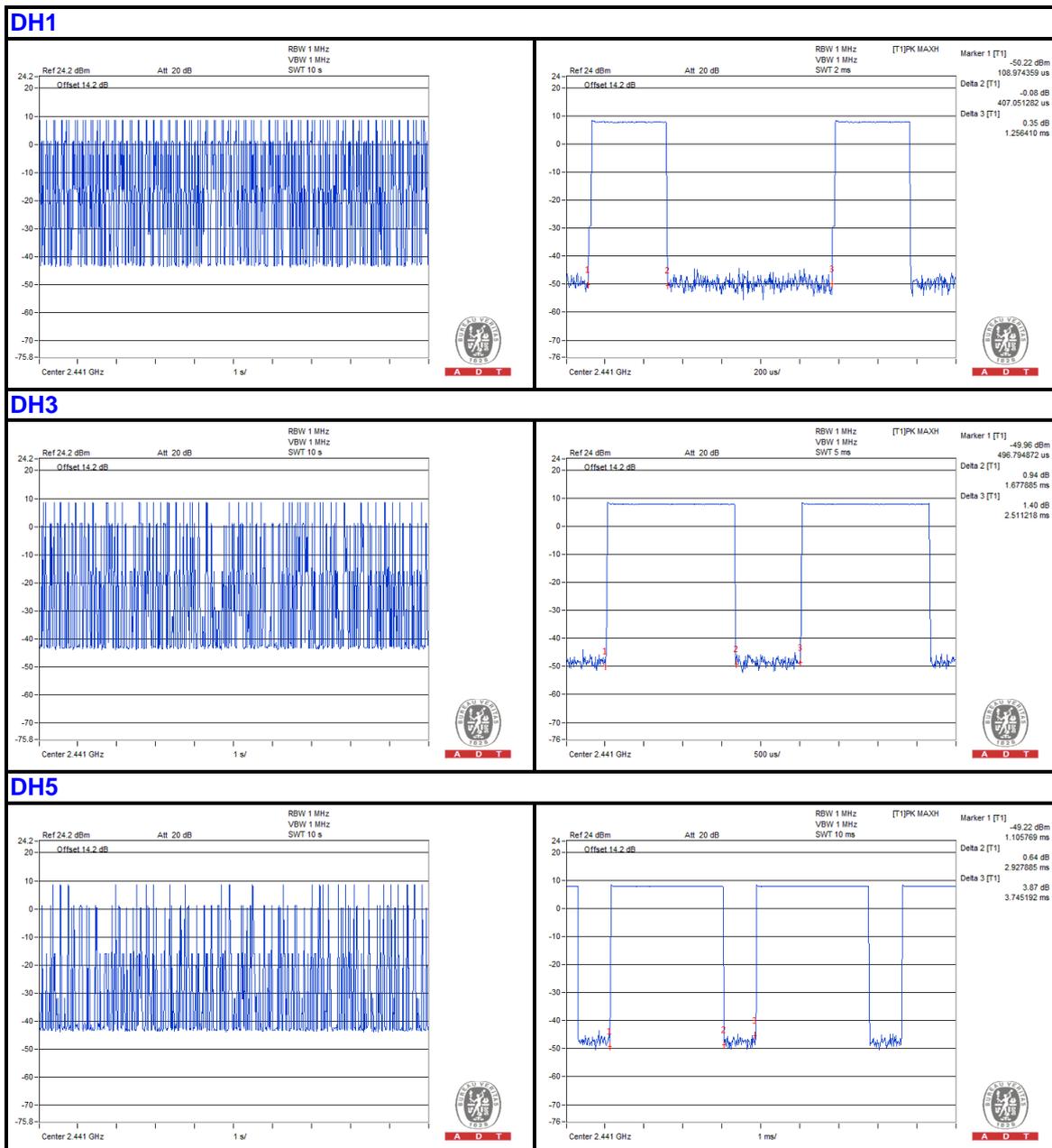
4.4.6 TEST RESULTS

GFSK

Mode	Average Hopping Channel	Package Transfer Time (usec)	Result (sec)	Limit (sec)
DH1	8.70	407.05	0.11	0.4
DH3	5.20	1677.89	0.28	0.4
DH5	3.10	2927.89	0.29	0.4

NOTE:

1. Dwell Time=79(channels) x 0.4(s) x average hopping channel x package transfer time
2. 79 channels come from the Hopping Channel number
3. Average Hopping Channel = hops/sweep time
4. t: Package Transfer Time(us)
5. Test plots of the transmitting time slot are shown as below.





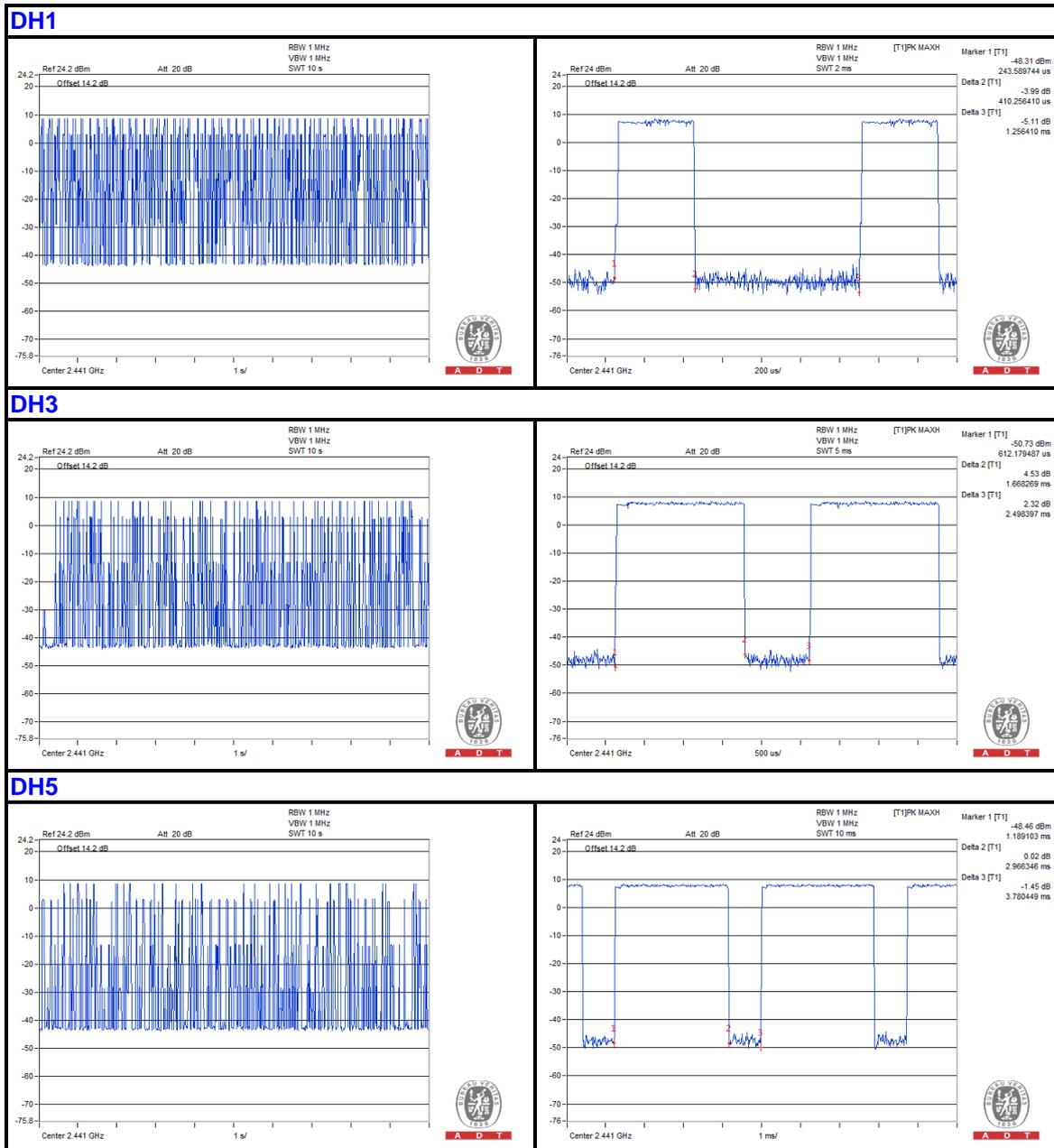
A D T

$\pi/4$ -DQPSK

Mode	Average Hopping Channel	Package Transfer Time (usec)	Result (sec)	Limit (sec)
DH1	8.80	410.26	0.11	0.4
DH3	5.20	1668.27	0.27	0.4
DH5	3.30	2966.35	0.31	0.4

NOTE:

1. Dwell Time=79(channels) x 0.4(s) x average hopping channel x package transfer time
2. 79 channels come from the Hopping Channel number
3. Average Hopping Channel = hops/sweep time
4. t: Package Transfer Time(us)
5. Test plots of the transmitting time slot are shown as below.





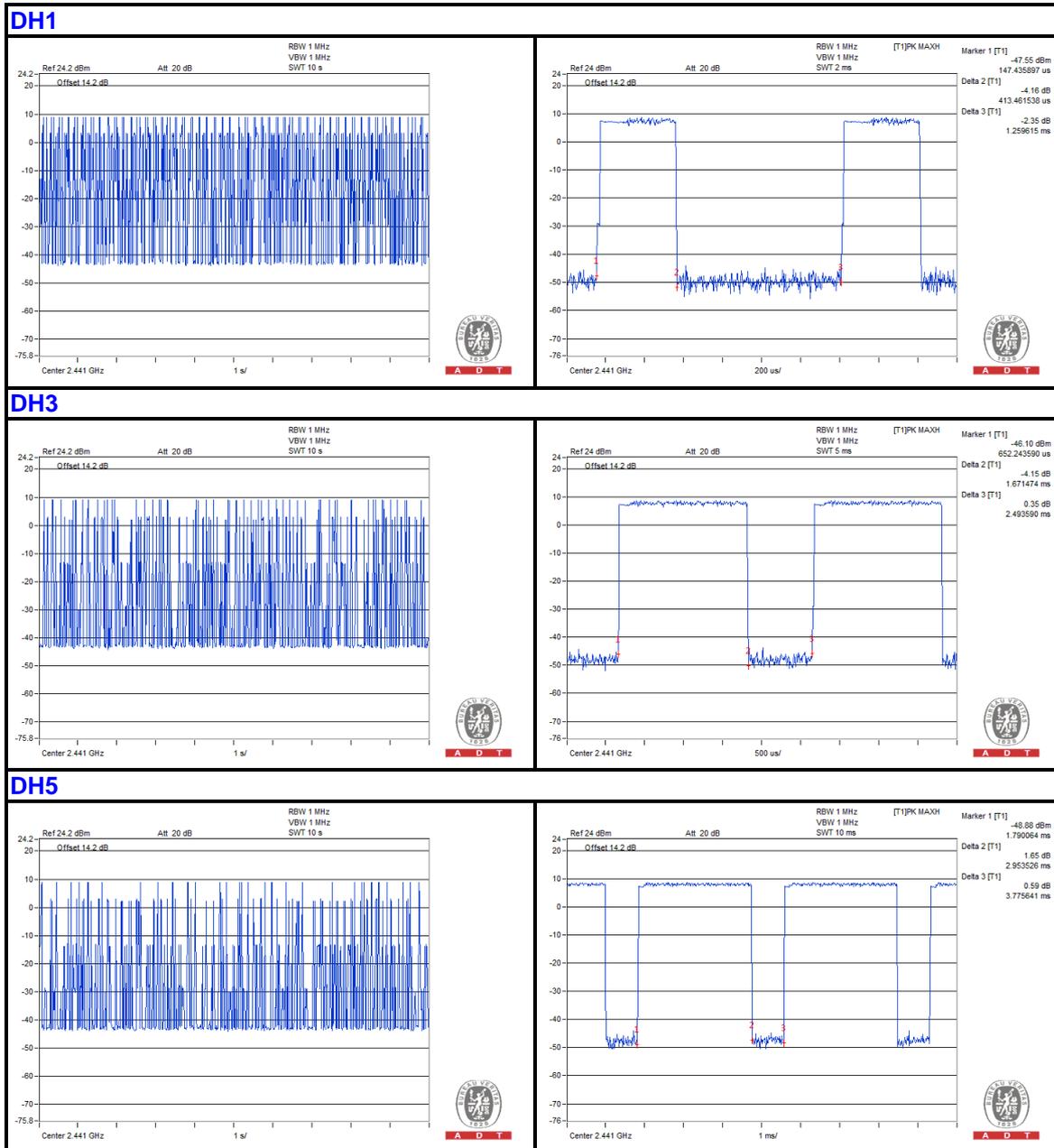
A D T

8DPSK

Mode	Average Hopping Channel	Package Transfer Time (usec)	Result (sec)	Limit (sec)
DH1	8.80	413.46	0.11	0.4
DH3	4.90	1671.47	0.26	0.4
DH5	3.20	2953.63	0.30	0.4

NOTE:

1. Dwell Time=79(channels) x 0.4(s) x average hopping channel x package transfer time
2. 79 channels come from the Hopping Channel number
3. Average Hopping Channel = hops/sweep time
4. t: Package Transfer Time(us)
5. Test plots of the transmitting time slot are shown as below.

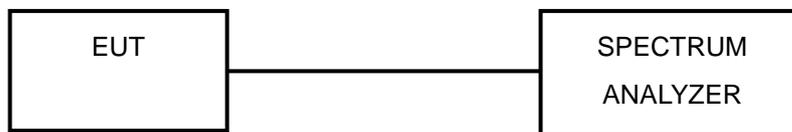


4.5 CHANNEL BANDWIDTH

4.5.1 LIMITS OF CHANNEL BANDWIDTH

For frequency hopping system operating in the 2400-2483.5MHz, If the 20dB bandwidth of hopping channel is greater than 25kHz, two-thirds 20dB bandwidth of hopping channel shall be a minimum limit for the hopping channel separation.

4.5.2 TEST SETUP



4.5.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.5.4 TEST PROCEDURE

- a. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- b. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
- c. Measure the frequency difference of two frequencies that were attenuated 20dB from the reference level. Record the frequency difference as the emission bandwidth.
- d. Repeat above procedures until all frequencies measured were complete.

4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

4.5.6 EUT OPERATING CONDITION

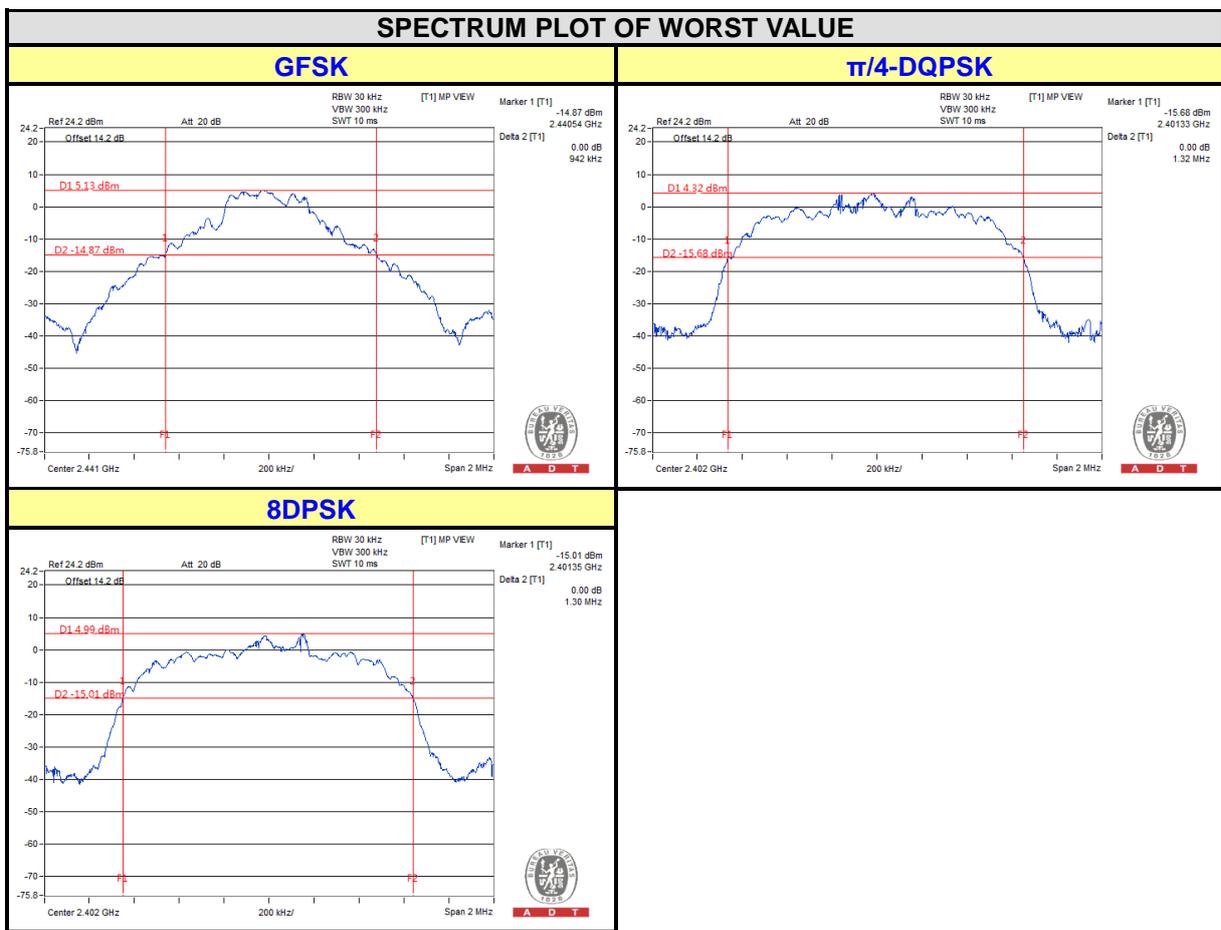
The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.



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4.5.7 TEST RESULTS

CHANNEL	FREQUENCY (MHz)	20dB BANDWIDTH (MHz)		
		GFSK	$\pi/4$ -DQPSK	8DPSK
0	2402	0.890	1.32	1.30
39	2441	0.942	1.32	1.30
78	2480	0.942	1.32	1.30

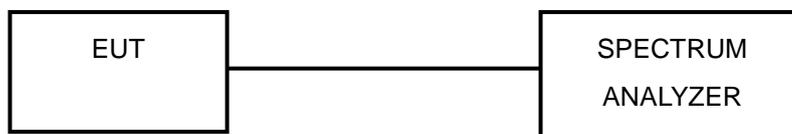


4.6 HOPPING CHANNEL SEPARATION

4.6.1 LIMITS OF HOPPING CHANNEL SEPARATION

At least 25kHz or two-third of 20dB hopping channel bandwidth (whichever is greater).

4.6.2 TEST SETUP



4.6.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.6.4 TEST PROCEDURE

- a. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- b. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range.
- c. By using the MaxHold function record the separation of two adjacent channels.
- d. Measure the frequency difference of these two adjacent channels by SA MARK function. And then plot the result on SA screen.
- e. Repeat above procedures until all frequencies measured were complete.

4.6.5 DEVIATION FROM TEST STANDARD

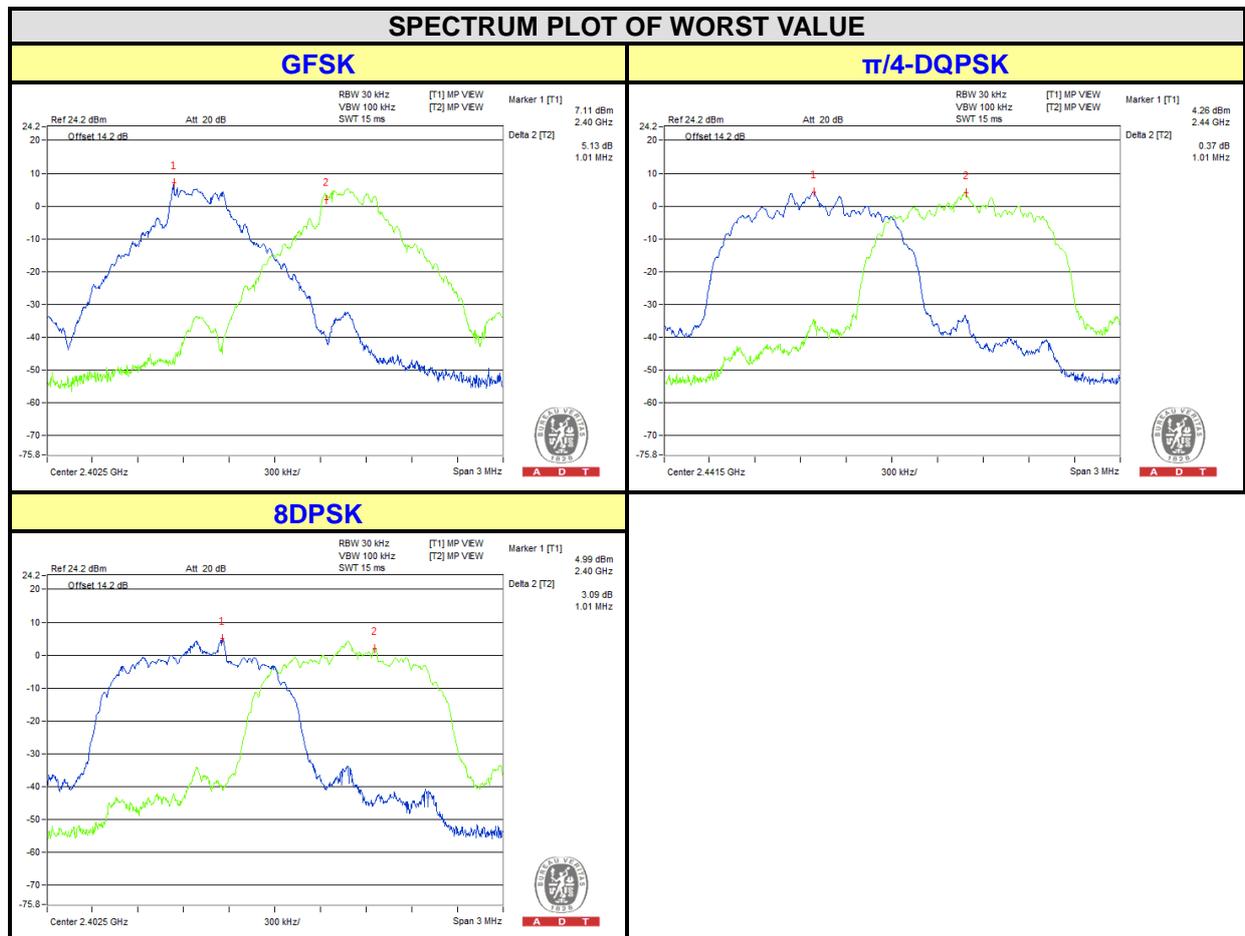
No deviation.

4.6.6 TEST RESULTS

CHAN.	FREQ. (MHz)	ADJACENT CHANNEL SEPARATION (MHz)			20dB BANDWIDTH (MHz)			MINIMUM LIMIT (MHz)			PASS / FAIL
		GFSK	$\pi/4$ -DQPSK	8DPSK	GFSK	$\pi/4$ -DQPSK	8DPSK	GFSK	$\pi/4$ -DQPSK	8DPSK	
0	2402	1.01	1.00	1.01	0.890	1.32	1.30	0.593	0.880	0.867	PASS
39	2441	1.00	1.01	1.01	0.942	1.32	1.30	0.628	0.880	0.867	PASS
78	2480	1.01	1.00	1.01	0.942	1.32	1.30	0.628	0.880	0.867	PASS

NOTE:

- The minimum limit is two-third 20dB bandwidth.

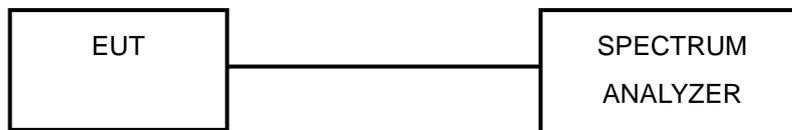


4.7 MAXIMUM OUTPUT POWER

4.7.1 LIMITS OF MAXIMUM OUTPUT POWER MEASUREMENT

The Maximum Output Power Measurement is 125mW.

4.7.2 TEST SETUP



4.7.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.7.4 TEST PROCEDURE

- a. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- b. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
- c. The center frequency of the spectrum analyzer is set to the fundamental frequency and using 3MHz RBW and 10 MHz VBW.
- d. Measure the captured power within the band and recording the plot.
- e. Repeat above procedures until all frequencies required were complete.

4.7.5 DEVIATION FROM TEST STANDARD

No deviation.

4.7.6 EUT OPERATING CONDITION

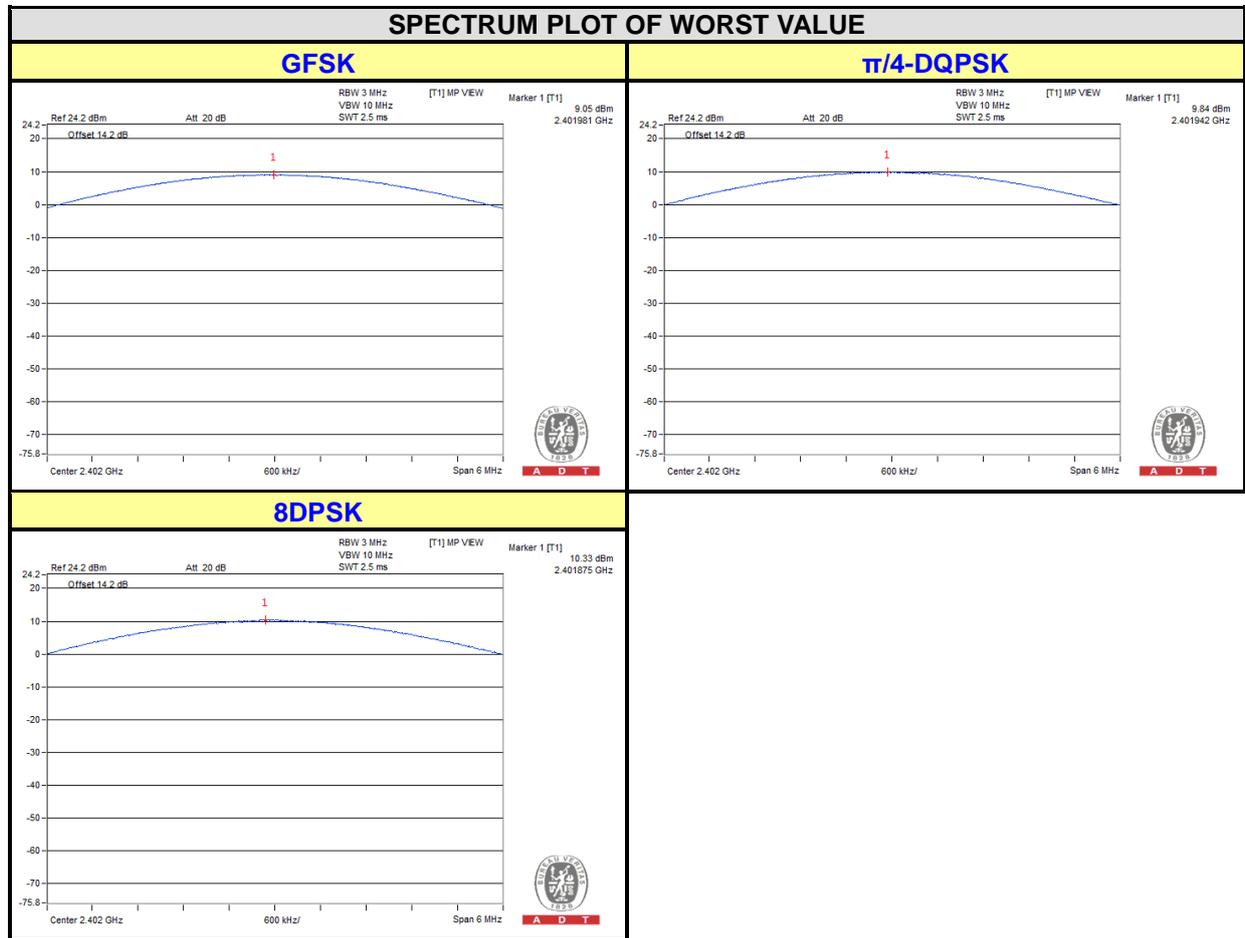
The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.



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4.7.7 TEST RESULTS

CHANNEL	FREQUENCY (MHz)	OUTPUT POWER (mW)			OUTPUT POWER (dBm)			POWER LIMIT (mW)	PASS / FAIL
		GFSK	$\pi/4$ -DQPSK	8DPSK	GFSK	$\pi/4$ -DQPSK	8DPSK		
0	2402	8.035	9.638	10.789	9.05	9.84	10.33	125	PASS
39	2441	7.745	9.268	10.328	8.89	9.67	10.14	125	PASS
78	2480	7.482	8.995	10.069	8.74	9.54	10.03	125	PASS





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4.8 CONDUCTED OUT OF BAND EMISSION MEASUREMENT

4.8.1 LIMITS OF CONDUCTED OUT OF BAND EMISSION MEASUREMENT

Below -20dB of the highest emission level of operating band (in 100kHz RBW).

4.8.2 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.8.3 TEST PROCEDURE

1. Set RBW = 100 kHz .
2. Set VBW = 300 kHz .
3. Set span to encompass the spectrum to be examined.
4. Detector = peak.
5. Trace Mode = max hold.
6. Sweep = auto couple.

4.8.4 DEVIATION FROM TEST STANDARD

No deviation.

4.8.5 EUT OPERATING CONDITION

The software provided by client enabled the EUT to transmit continuously.

4.8.6 TEST RESULTS

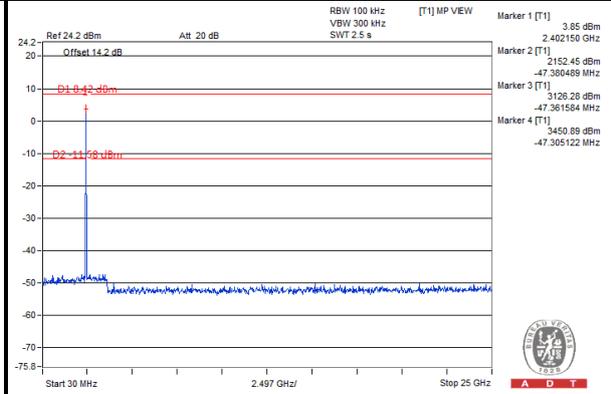
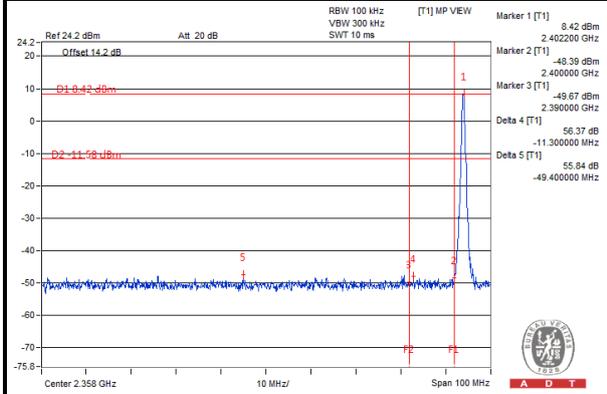
The spectrum plots are attached on the following images. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.



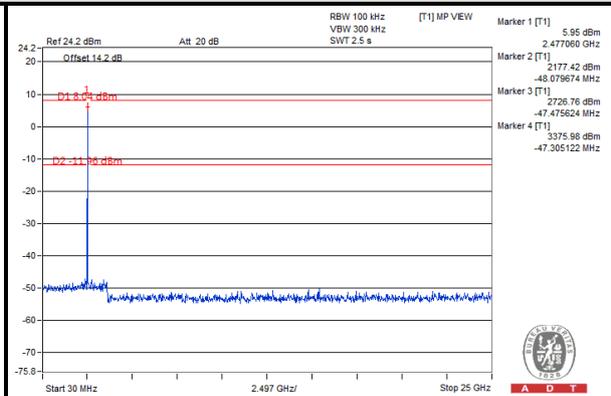
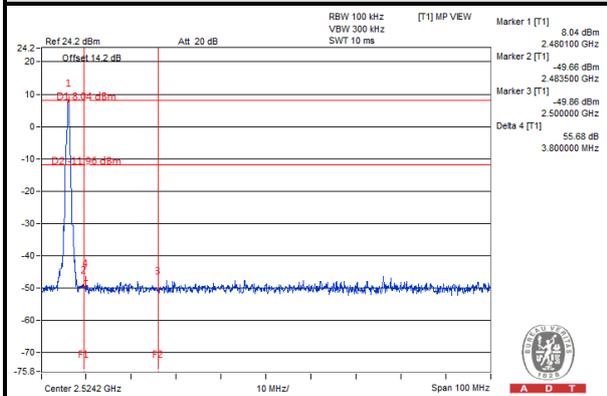
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GFSK

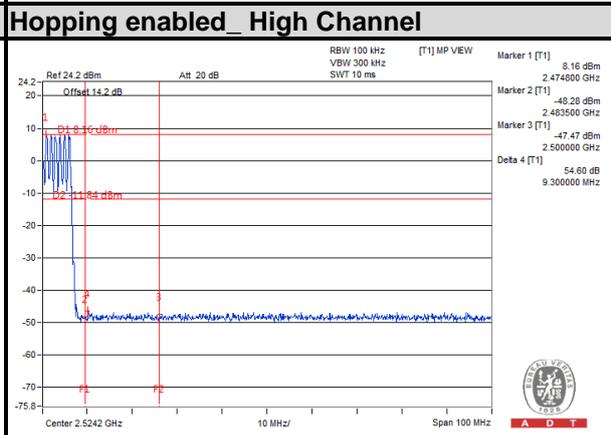
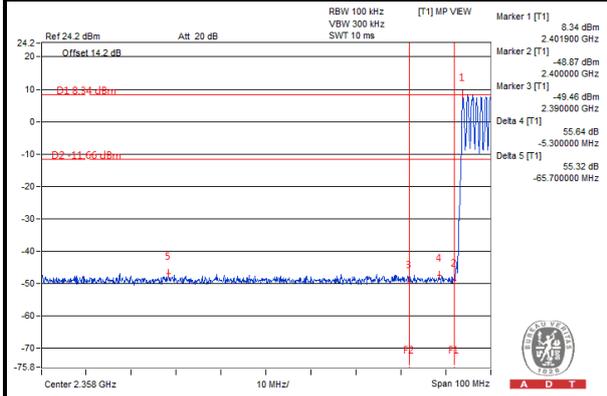
Hopping disabled_Low Channel



Hopping disabled_High Channel



Hopping enabled_Low Channel

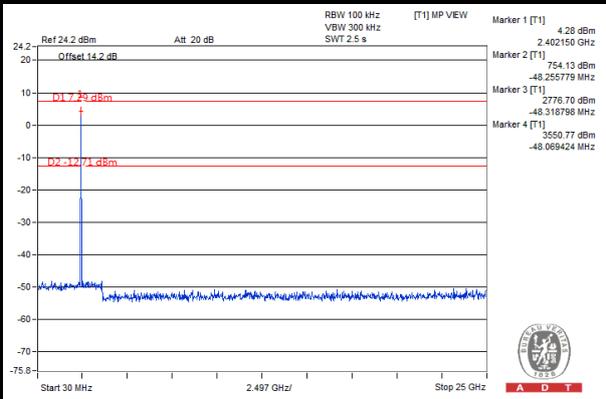
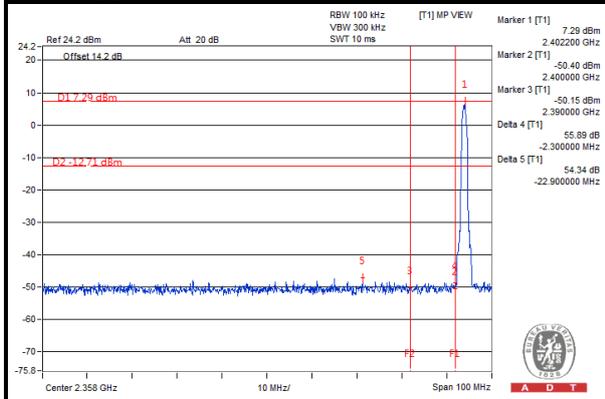




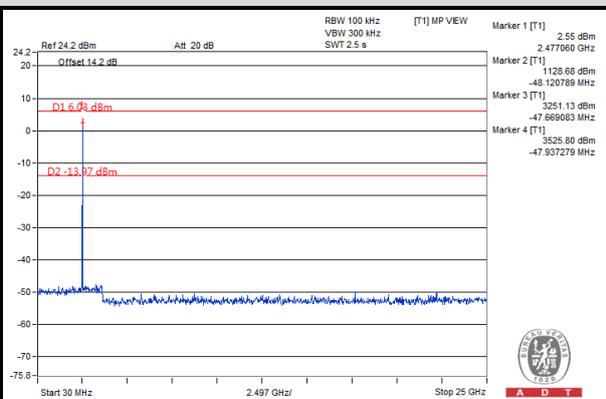
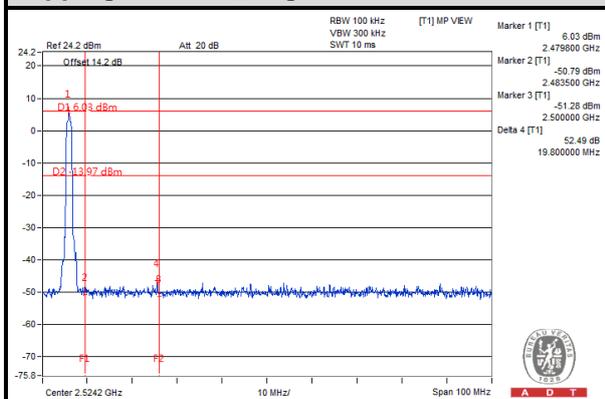
A D T

$\pi/4$ -DQPSK

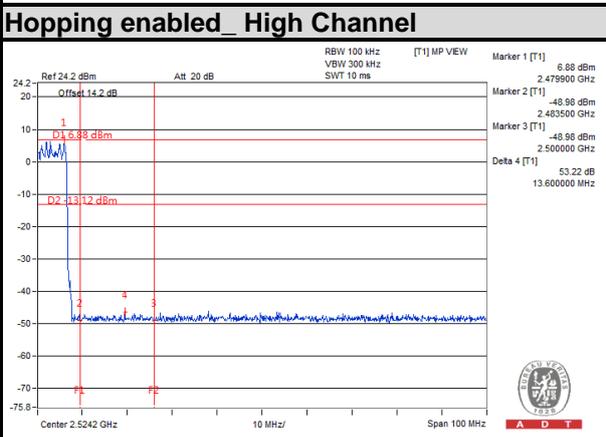
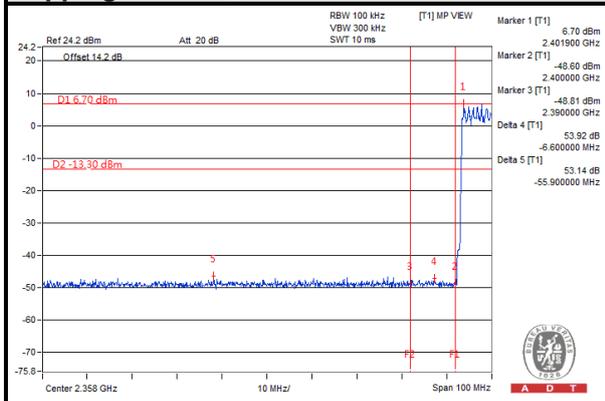
Hopping disabled_ Low Channel



Hopping disabled_ High Channel



Hopping enabled_ Low Channel

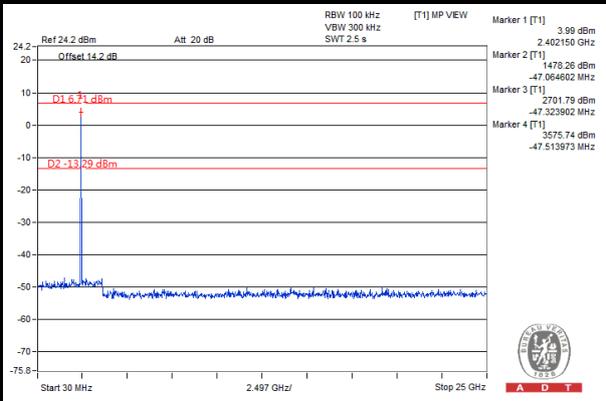
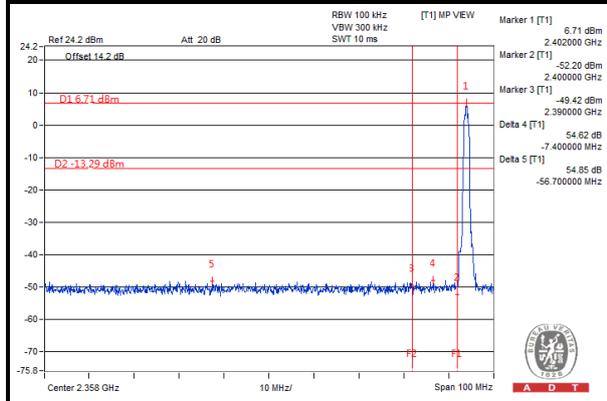




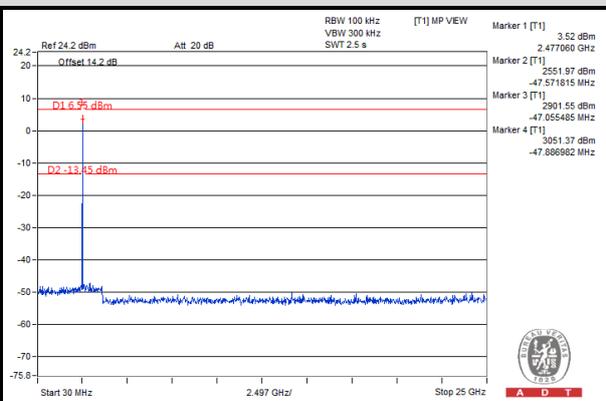
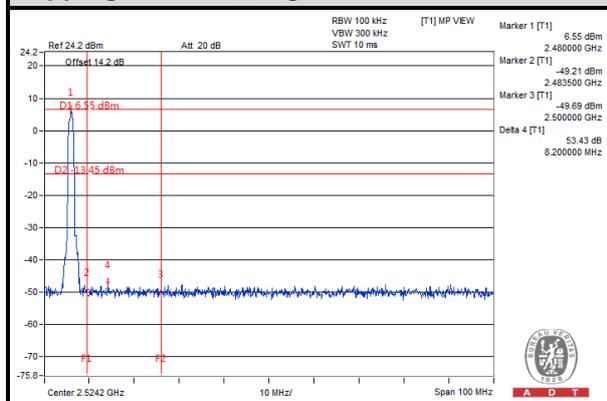
A D T

8DPSK

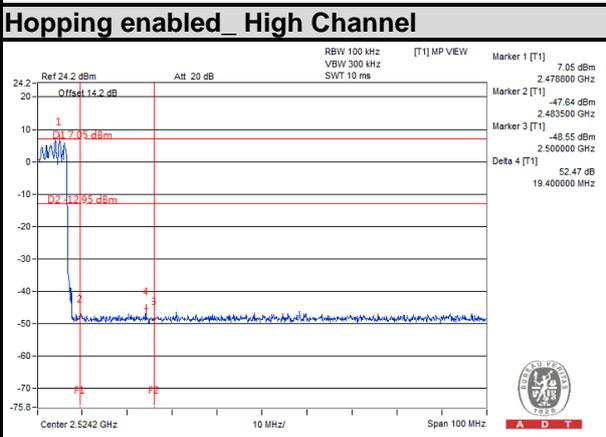
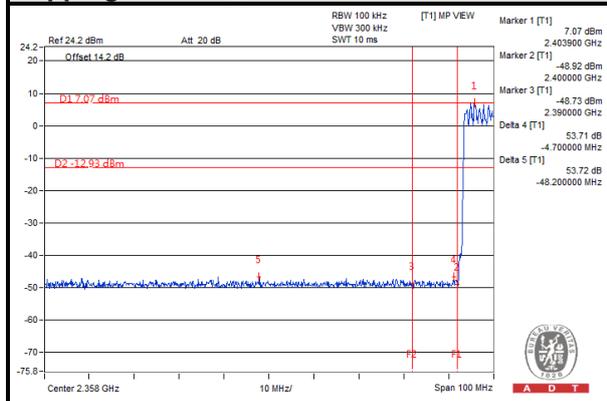
Hopping disabled_ Low Channel



Hopping disabled_ High Channel



Hopping enabled_ Low Channel



5. TEST TYPES AND RESULTS (FOR BLUETOOTH LE 4.0)

5.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT

5.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power:

FREQUENCIES (MHz)	FIELD STRENGTH (microvolts/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

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

5.1.2 TEST INSTRUMENTS

Same as item 4.1.2.

5.1.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Height of receiving antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

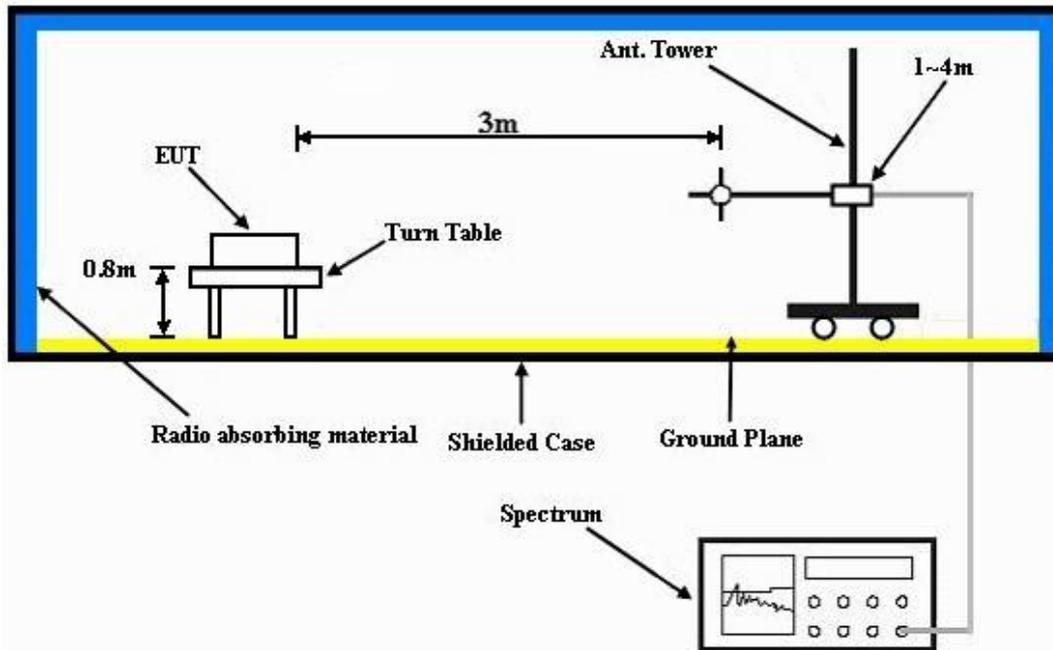
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

5.1.4 DEVIATION FROM TEST STANDARD

No deviation.

5.1.5 TEST SETUP



For the actual test configuration, please refer to the attached file (Test Setup Photo).

5.1.6 EUT OPERATING CONDITIONS

- a. Placed the EUT on a testing table.
- b. Use the software to control the EUT under transmission condition continuously at specific channel frequency.



5.1.7 TEST RESULTS

Mode A

ABOVE 1GHz WORST-CASE DATA

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 0	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2384	40.9	39.06	54	-13.1	31.93	5.4	35.49	132	0	Average
2384	50.88	49.04	74	-23.12	31.93	5.4	35.49	132	0	Peak
2402	97.32	95.43			31.96	5.4	35.47	132	0	Average
2402	98.08	96.19			31.96	5.4	35.47	132	0	Peak
2498	41.37	39.15	54	-12.63	32.1	5.53	35.41	132	0	Average
2498	51.9	49.68	74	-22.1	32.1	5.53	35.41	132	0	Peak

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2322	40.67	39.08	54	-13.33	31.81	5.3	35.52	138	22	Average
2322	51.64	50.05	74	-22.36	31.81	5.3	35.52	138	22	Peak
2402	92.28	90.39			31.96	5.4	35.47	138	22	Average
2402	93.5	91.61			31.96	5.4	35.47	138	22	Peak
2490	41.51	39.3	54	-12.49	32.1	5.53	35.42	138	22	Average
2490	50.85	48.64	74	-23.15	32.1	5.53	35.42	138	22	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2402MHz: Fundamental frequency.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 19	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2342	40.53	38.86	54	-13.47	31.84	5.33	35.5	159	360	Average
2342	50.52	48.85	74	-23.48	31.84	5.33	35.5	159	360	Peak
2440	97.34	95.33			32.01	5.46	35.46	159	360	Average
2440	98.14	96.13			32.01	5.46	35.46	159	360	Peak
2492	41.4	39.18	54	-12.6	32.1	5.53	35.41	159	360	Average
2492	50.6	48.38	74	-23.4	32.1	5.53	35.41	159	360	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2378	40.77	38.99	54	-13.23	31.9	5.37	35.49	112	0	Average
2378	51.04	49.26	74	-22.96	31.9	5.37	35.49	112	0	Peak
2440	93.6	91.59			32.01	5.46	35.46	112	0	Average
2440	94.94	92.93			32.01	5.46	35.46	112	0	Peak
2498	41.57	39.35	54	-12.43	32.1	5.53	35.41	112	0	Average
2498	50.65	48.43	74	-23.35	32.1	5.53	35.41	112	0	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2440MHz: Fundamental frequency.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 39	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2318	40.71	39.12	54	-13.29	31.81	5.3	35.52	191	360	Average
2318	51.41	49.82	74	-22.59	31.81	5.3	35.52	191	360	Peak
2480	96.37	94.22			32.07	5.5	35.42	191	360	Average
2480	97.4	95.25			32.07	5.5	35.42	191	360	Peak
2484	41.29	39.11	54	-12.71	32.1	5.5	35.42	191	360	Average
2484	51.04	48.86	74	-22.96	32.1	5.5	35.42	191	360	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2350	40.75	39.05	54	-13.25	31.87	5.33	35.5	108	0	Average
2350	50.63	48.93	74	-23.37	31.87	5.33	35.5	108	0	Peak
2480	93.7	91.55			32.07	5.5	35.42	108	0	Average
2480	94.65	92.5			32.07	5.5	35.42	108	0	Peak
2496	41.67	39.45	54	-12.33	32.1	5.53	35.41	108	0	Average
2496	51.22	49	74	-22.78	32.1	5.53	35.41	108	0	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2480MHz: Fundamental frequency.



A D T

BELOW 1GHz WORST-CASE DATA :

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 0	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
58.62	21.98	46.36	40	-18.02	6.95	0.9	32.23	156	215	Peak
96.42	35.48	56.82	43.5	-8.02	9.42	1.28	32.04	102	114	Peak
143.94	21.62	42.9	43.5	-21.88	9.61	1.38	32.27	122	144	Peak
393.8	21.14	33.36	46	-24.86	17.65	2.34	32.21	123	215	Peak
549.9	21.78	30.92	46	-24.22	20.3	2.76	32.2	114	112	Peak
636.7	25.55	32.68	46	-20.45	22.1	2.93	32.16	102	115	Peak

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
47.28	21.63	44.3	40	-18.37	8.65	0.9	32.22	155	141	Peak
92.37	35.24	56.85	43.5	-8.26	9.1	1.11	31.82	144	102	Peak
143.94	16.05	37.33	43.5	-27.45	9.61	1.38	32.27	125	103	Peak
386.8	20.61	33.25	46	-25.39	17.2	2.34	32.18	122	154	Peak
505.1	23.24	33.34	46	-22.76	19.38	2.63	32.11	102	113	Peak
594.7	23.81	32.28	46	-22.19	20.85	2.87	32.19	155	215	Peak

REMARKS: Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
 Margin value = Emission level – Limit value



A D T

Mode B

ABOVE 1GHz WORST-CASE DATA

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 39	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2356	41.11	39.37	54	-12.89	31.87	5.37	35.5	126	251	Average
2356	55.32	53.58	74	-18.68	31.87	5.37	35.5	126	251	Peak
2480	94.12	91.97			32.07	5.5	35.42	126	251	Average
2480	95.11	92.96			32.07	5.5	35.42	126	251	Peak
2488	41.64	39.43	54	-12.36	32.1	5.53	35.42	126	251	Average
2488	56.69	54.48	74	-17.31	32.1	5.53	35.42	126	251	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2310	40.83	39.27	54	-13.17	31.79	5.3	35.53	107	96	Average
2310	53.6	52.04	74	-20.4	31.79	5.3	35.53	107	96	Peak
2480	94.08	91.93			32.07	5.5	35.42	107	96	Average
2480	95.16	93.01			32.07	5.5	35.42	107	96	Peak
2484	41.62	39.44	54	-12.38	32.1	5.5	35.42	107	96	Average
2484	56.73	54.55	74	-17.27	32.1	5.5	35.42	107	96	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2480MHz: Fundamental frequency.



A D T

BELOW 1GHz WORST-CASE DATA :

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 39	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
92.64	30.15	51.78	43.5	-13.35	9.14	1.11	31.88	100	221	Peak
120.72	24.93	47.17	43.5	-18.57	8.73	1.28	32.25	152	123	Peak
177.42	25.94	46.28	43.5	-17.56	10.29	1.61	32.24	138	85	Peak
400.1	22.7	34.48	46	-23.3	18.1	2.34	32.22	100	189	Peak
579.3	23.09	32.24	46	-22.91	20.23	2.82	32.2	100	258	Peak
795.6	25.66	30.04	46	-20.34	24.42	3.27	32.07	100	111	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
30.81	30.42	44.75	40	-9.58	17.19	0.74	32.26	100	186	Peak
68.61	28.77	52.18	40	-11.23	7.91	0.9	32.22	158	74	Peak
83.73	27.23	49.59	40	-12.77	8.59	1.11	32.06	100	155	Peak
473.6	22.86	33.61	46	-23.14	18.81	2.56	32.12	100	185	Peak
566	23.44	32.65	46	-22.56	20.17	2.82	32.2	100	66	Peak
704.6	25.57	31.41	46	-20.43	23.14	3.11	32.09	100	0	Peak

REMARKS: Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor

Margin value = Emission level – Limit value



A D T

Mode C

ABOVE 1GHz WORST-CASE DATA

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 39	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Anson Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2360	35.34	41.15	54	-18.66	28.18	3.5	37.49	100	315	Average
2360	47.73	53.54	74	-26.27	28.18	3.5	37.49	100	315	Peak
2480	89.4	94.75			28.37	3.6	37.32	100	315	Average
2480	90.18	95.53			28.37	3.6	37.32	100	315	Peak
2484	35.74	41.09	54	-18.26	28.37	3.6	37.32	100	315	Average
2484	46.99	52.34	74	-27.01	28.37	3.6	37.32	100	315	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2376	35.44	41.21	54	-18.56	28.21	3.52	37.5	114	225	Average
2376	46.95	52.72	74	-27.05	28.21	3.52	37.5	114	225	Peak
2480	88.85	94.2			28.37	3.6	37.32	114	225	Average
2480	89.4	94.75			28.37	3.6	37.32	114	225	Peak
2498	36.03	41.26	54	-17.97	28.4	3.62	37.25	114	225	Average
2498	47.64	52.87	74	-26.36	28.4	3.62	37.25	114	225	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2480MHz: Fundamental frequency.



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BELOW 1GHz WORST-CASE DATA :

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 39	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Anson Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
50.52	19.12	36.69	40	-20.88	12.97	0.77	31.31	100	334	Peak
153.66	17.15	34.76	43.5	-26.35	12.72	1.36	31.69	100	162	Peak
271.92	15.82	33.78	46	-30.18	12.11	1.92	31.99	100	172	Peak
384	23.72	38.39	46	-22.28	14.96	2.36	31.99	100	163	Peak
645.1	23.8	32.48	46	-22.2	20.15	3.23	32.06	100	159	Peak
911.8	28.17	32.64	46	-17.83	23.58	3.99	32.04	100	185	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
32.7	26.1	44.14	40	-13.9	12.47	0.58	31.09	100	117	Peak
132.33	13.69	32.46	43.5	-29.81	11.81	1.25	31.83	100	153	Peak
240.87	13.6	32.53	46	-32.4	11.07	1.79	31.79	100	102	Peak
447.7	21.39	34.47	46	-24.61	16.29	2.61	31.98	100	132	Peak
624.1	23.89	33	46	-22.11	19.89	3.16	32.16	100	271	Peak
850.9	28.52	33.69	46	-17.48	22.88	3.82	31.87	100	140	Peak

REMARKS: Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor

Margin value = Emission level – Limit value



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ABOVE 1GHz WORST-CASE DATA

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 39	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Anson Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2362	34.05	39.86	54	-19.95	28.18	3.5	37.49	100	221	Average
2362	58.23	64.04	74	-15.77	28.18	3.5	37.49	100	221	Peak
2480	88.87	94.22			28.37	3.6	37.32	100	221	Average
2480	89.68	95.03			28.37	3.6	37.32	100	221	Peak
2498	34.96	40.19	54	-19.04	28.4	3.62	37.25	100	221	Average
2498	58.39	63.62	74	-15.61	28.4	3.62	37.25	100	221	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2324	33.93	39.8	54	-20.07	28.12	3.48	37.47	100	162	Average
2324	58.49	64.36	74	-15.51	28.12	3.48	37.47	100	162	Peak
2480	86.86	92.21			28.37	3.6	37.32	100	162	Average
2480	87.66	93.01			28.37	3.6	37.32	100	162	Peak
2484	34.66	40.01	54	-19.34	28.37	3.6	37.32	100	162	Average
2484	58.89	64.24	74	-15.11	28.37	3.6	37.32	100	162	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2480MHz: Fundamental frequency.



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BELOW 1GHz WORST-CASE DATA :

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 39	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Anson Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
43.23	19.8	36.61	40	-20.2	13.59	0.71	31.11	100	109	Peak
160.14	16.45	34.21	43.5	-27.05	12.73	1.39	31.88	100	65	Peak
255.99	16.45	34.84	46	-29.55	11.65	1.85	31.89	100	207	Peak
451.2	22.47	35.48	46	-23.53	16.35	2.62	31.98	100	23	Peak
626.2	23.76	32.81	46	-22.24	19.93	3.17	32.15	100	119	Peak
902.7	28.2	32.72	46	-17.8	23.53	3.97	32.02	100	228	Peak

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
30.81	31.12	49.53	40	-8.88	12.14	0.57	31.12	100	111	Peak
157.71	15.65	33.37	43.5	-27.85	12.73	1.38	31.83	100	120	Peak
243.84	15.26	34.1	46	-30.74	11.19	1.81	31.84	100	315	Peak
406.4	21.17	35.3	46	-24.83	15.46	2.45	32.04	100	168	Peak
620.6	23.75	32.91	46	-22.25	19.86	3.15	32.17	100	204	Peak
936.3	29.22	33.41	46	-16.78	23.71	4.05	31.95	100	1464	Peak

REMARKS: Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor

Margin value = Emission level – Limit value

5.2 CONDUCTED EMISSION MEASUREMENT

5.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

Same as item 4.2.1.

5.2.2 TEST INSTRUMENTS

Same as item 4.2.2.

5.2.3 TEST PROCEDURES

Same as item 4.2.3.

5.2.4 DEVIATION FROM TEST STANDARD

No deviation.

5.2.5 TEST SETUP

Same as item 4.2.5.

5.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6

5.2.7 TEST RESULTS

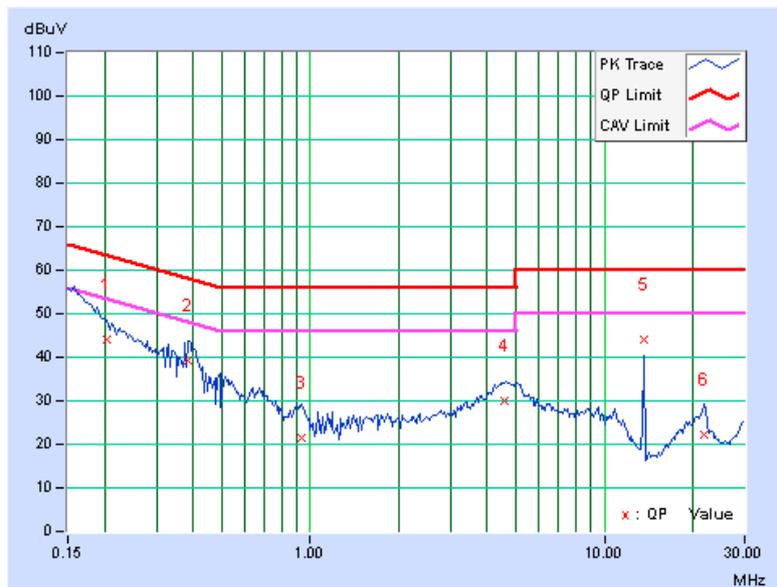
CONDUCTED WORST-CASE DATA :

PHASE	Line 1	6dB BANDWIDTH	9kHz
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No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
	[MHz]		[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.20469	0.17	43.85	30.79	44.02	30.96	63.42	53.42	-19.40	-22.46
2	0.38438	0.21	38.88	33.99	39.09	34.20	58.18	48.18	-19.10	-13.99
3	0.93125	0.26	21.20	17.79	21.46	18.05	56.00	46.00	-34.54	-27.95
4	4.55078	0.38	29.73	19.99	30.11	20.37	56.00	46.00	-25.89	-25.63
5	13.56250	0.50	43.62	37.83	44.12	38.33	60.00	50.00	-15.88	-11.67
6	21.73047	0.63	21.67	13.51	22.30	14.14	60.00	50.00	-37.70	-35.86

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

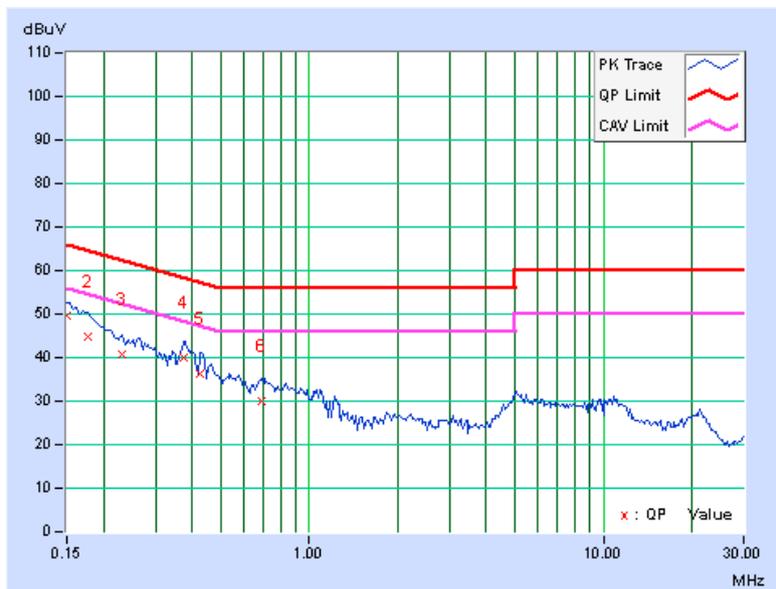


PHASE	Line 2	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.15000	0.12	49.61	36.89	49.73	37.01	66.00
2	0.17734	0.12	44.75	32.22	44.87	32.34	64.61	54.61	-19.74	-22.27
3	0.23203	0.12	40.45	26.91	40.57	27.03	62.38	52.38	-21.80	-25.34
4	0.37656	0.14	40.04	31.30	40.18	31.44	58.35	48.35	-18.18	-16.92
5	0.42734	0.14	36.21	29.93	36.35	30.07	57.30	47.30	-20.95	-17.23
6	0.69297	0.15	29.84	23.27	29.99	23.42	56.00	46.00	-26.01	-22.58

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

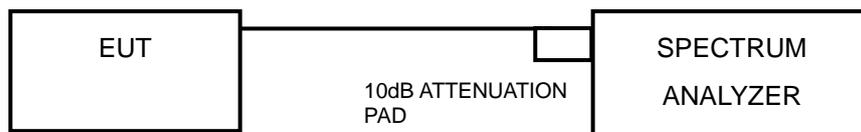


5.3 6dB BANDWIDTH MEASUREMENT

5.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

5.3.2 TEST SETUP



5.3.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

5.3.4 TEST PROCEDURE

3. Set resolution bandwidth (RBW) = approximately 1% of the emission bandwidth
4. Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
5. Trace mode = max hold.
6. Sweep = auto couple.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

5.3.5 DEVIATION FROM TEST STANDARD

No deviation.

5.3.6 EUT OPERATING CONDITIONS

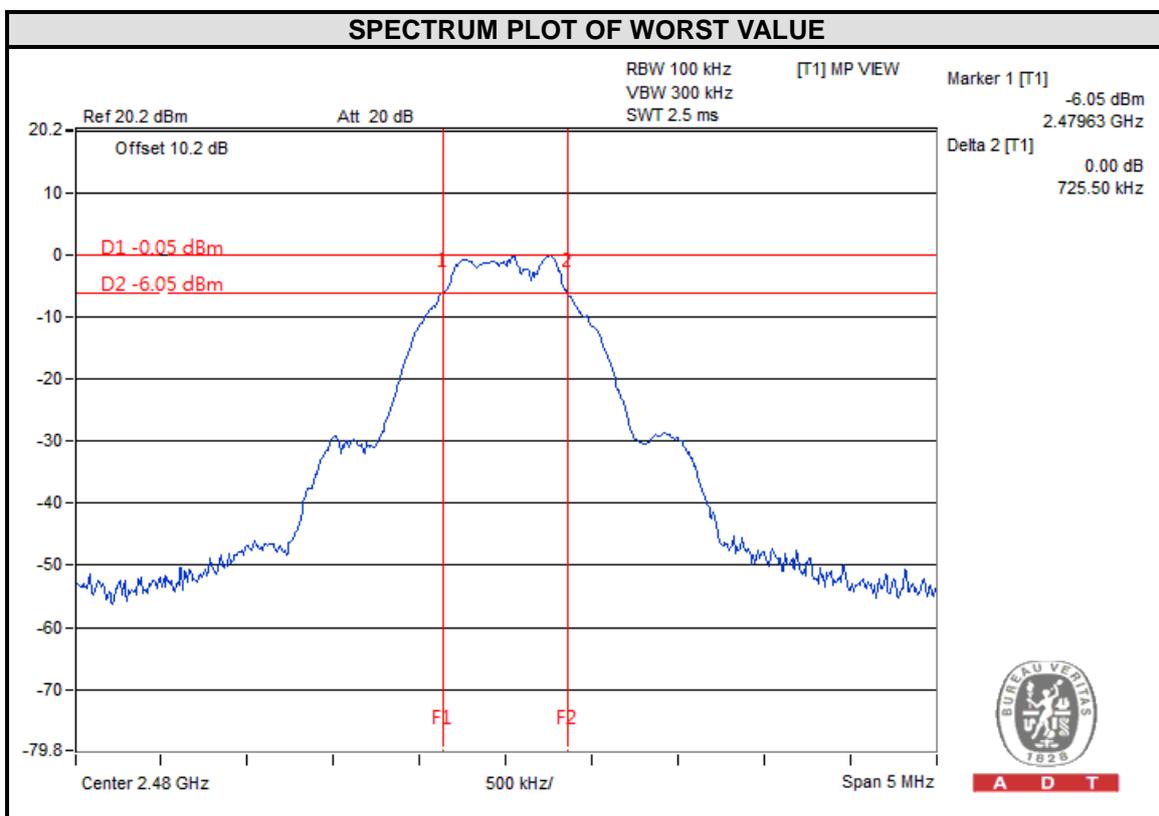
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.



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5.3.7 TEST RESULTS

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (KHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
0	2402	671.14	0.5	PASS
19	2440	675.28	0.5	PASS
39	2480	725.50	0.5	PASS



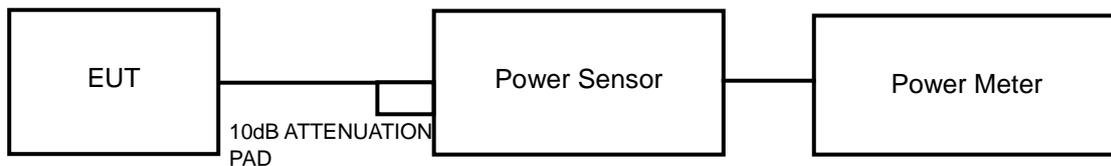
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5.4 CONDUCTED OUTPUT POWER

5.4.1 LIMITS OF MAXIMUM OUTPUT POWER MEASUREMENT

For systems using digital modulation in the 2400-2483.5 MHz bands: 1 Watt (30dBm)

5.4.2 TEST SETUP



5.4.3 INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

5.4.4 TEST PROCEDURES

A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the peak power level.

5.4.5 DEVIATION FROM TEST STANDARD

No deviation.

5.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6.

5.4.7 TEST RESULTS

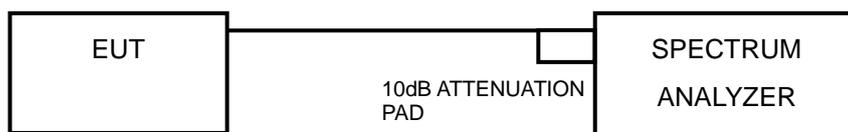
CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
0	2402	0.923	-0.35	30	PASS
19	2440	0.851	-0.7	30	PASS
39	2480	0.855	-0.68	30	PASS

5.5 POWER SPECTRAL DENSITY MEASUREMENT

5.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

5.5.2 TEST SETUP



5.5.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

5.5.4 TEST PROCEDURE.

- a. Set the RBW = 3 kHz, VBW =10 kHz, Detector = peak.
- b. Sweep time = auto couple, Trace mode = max hold, allow trace to fully stabilize.
- c. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

5.5.5 DEVIATION FROM TEST STANDARD

No deviation.

5.5.6 EUT OPERATING CONDITION

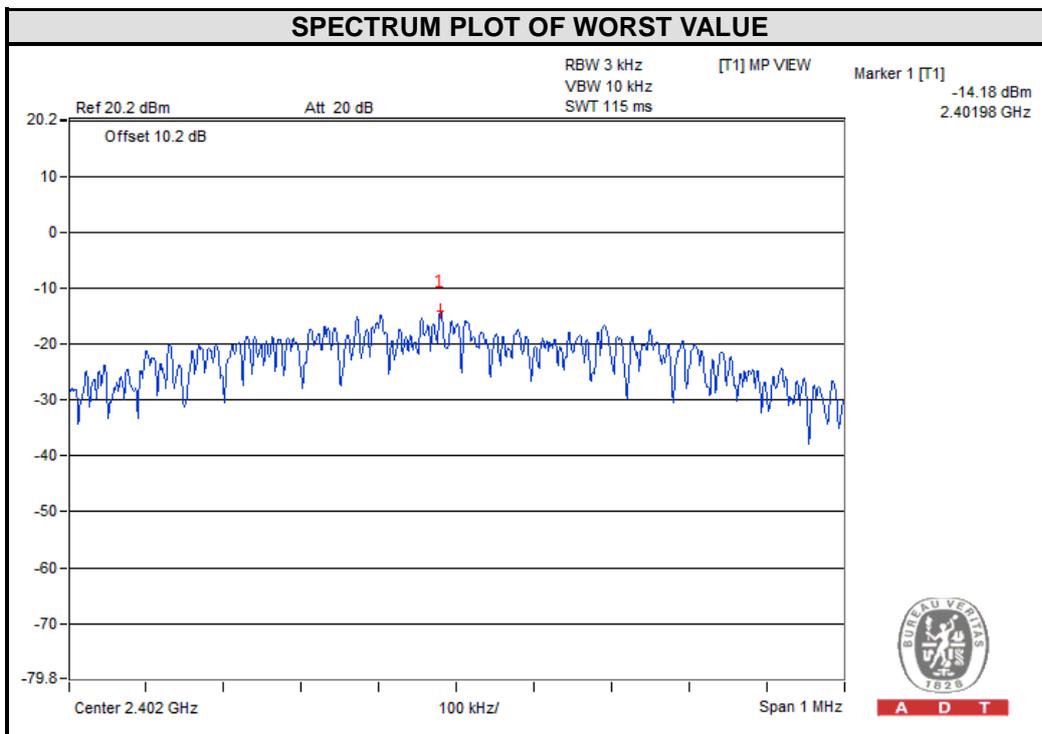
Same as item 4.3.6.



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5.5.7 TEST RESULTS

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	2402	-14.18	8	PASS
19	2440	-14.29	8	PASS
39	2480	-14.44	8	PASS

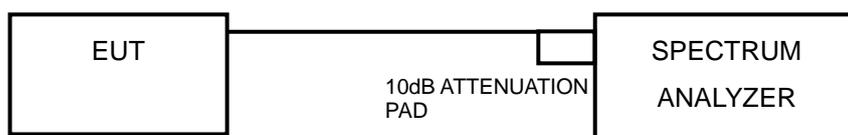


5.6 CONDUCTED OUT OF BAND EMISSION MEASUREMENT

5.6.1 LIMITS OF OUT OF BAND EMISSION MEASUREMENT

Below -20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

5.6.2 TEST SETUP



5.6.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

5.6.4 TEST PROCEDURE

MEASUREMENT PROCEDURE REF

3. Set the RBW = 100 kHz.
4. Set the VBW \geq 300 kHz.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.



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MEASUREMENT PROCEDURE OOBE

3. Set RBW = 100 kHz.
4. Set VBW \geq 300 kHz.
5. Ensure that the number of measurement points \geq span/RBW
6. According to measurement points to set differ measurement span.
7. Detector = peak.
8. Trace Mode = max hold.
9. Sweep = auto couple.

5.6.5 DEVIATION FROM TEST STANDARD

No deviation.

5.6.6 EUT OPERATING CONDITION

Same as Item 4.3.6

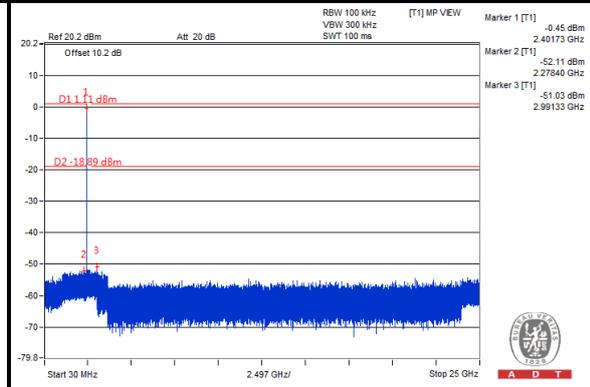
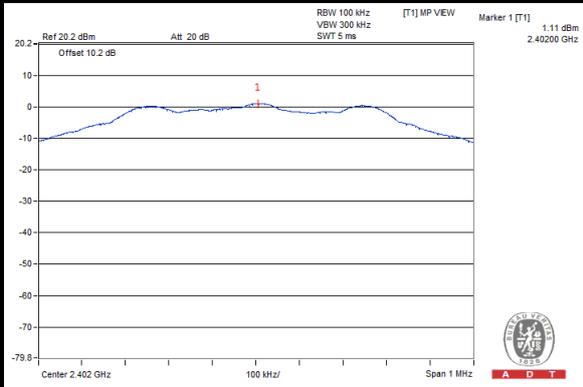
5.6.7 TEST RESULTS

The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.

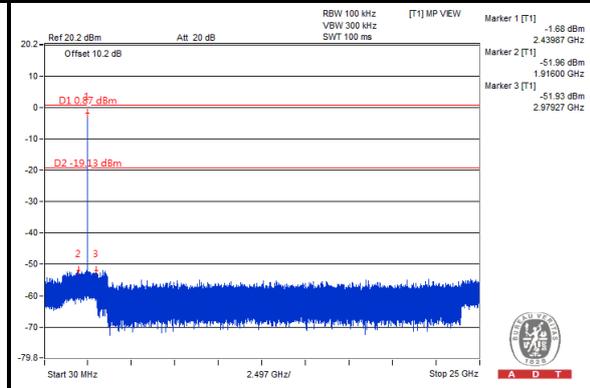
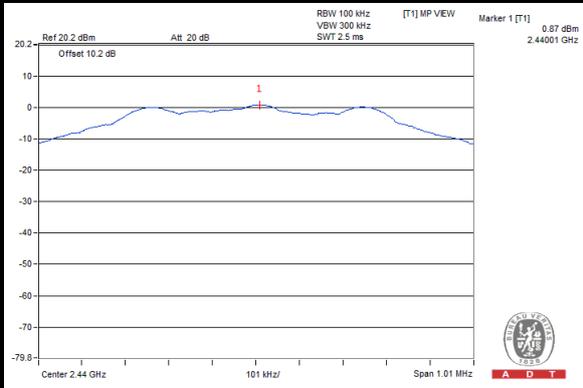


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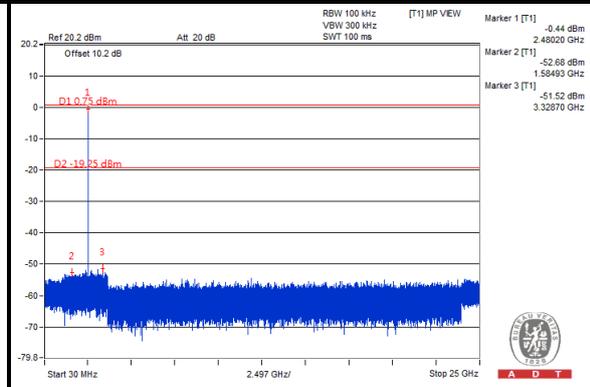
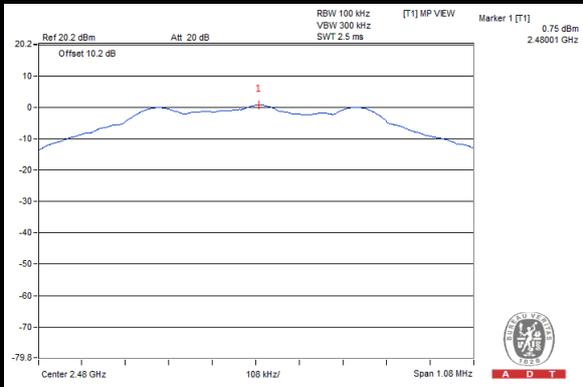
CH 0



CH 19



CH 39





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6. PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).



7. INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

The address and road map of all our labs can be found in our web site also.



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8. APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

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