

RADIO TEST REPORT

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MODEL NO.: WLE200N2

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APPLICANT: Compex Systems Pte Ltd.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RE980630H04X	Original release	Apr. 02, 2013



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1 CERTIFICATION

PRODUCT: WIRELESS-BGN 2X2 NETWORK MINI PCIE ADAPTER

BRAND NAME: COMPEX

MODEL NO: WLE200N2


TEST ITEM: R&D SAMPLE

TESTED: July 03 to 08, 2009

APPLICANT: Compex Systems Pte Ltd.

STANDARDS: EN 300 328 V1.7.1 (2006-10)

The above equipment (Model: WLE200N2) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and was in 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 :  , **DATE:** Apr. 02, 2013
(Claire Kuan, Specialist)

APPROVED BY :  , **DATE:** Apr. 02, 2013
(May Chen, Manager)

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

EN 300 328 V1.7.1			
Clause	Test Parameter	Remarks	Pass/Fail
TRANSMITTER PARAMETERS			
4.3.1	Equivalent isotropic Radiated Power(Radiated)	Not Applicable	NA
4.3.1	Equivalent isotropic Radiated Power (Conducted)	Applicable	Pass
4.3.2	Peak Power Density (DSSS, OFDM Equipment – Radiated)	Not Applicable	NA
4.3.2	Peak Power Density (DSSS, OFDM Equipment – Conducted)	Applicable	Pass
4.3.3	Frequency Range of Equipment Using FHSS Modulation	Not Applicable	NA
4.3.3	Frequency Range of Equipment Using Other Forms Of Modulation	Applicable	Pass
4.3.6	Spurious Emissions (Operating – Radiated)	Applicable	Pass
4.3.6	Spurious Emissions (Standby – Radiated)	See Note 1	Pass
4.3.6	Spurious Emissions (Operating – Conducted)	Applicable	Pass
4.3.6	Spurious Emissions (Standby – Conducted)	See Note 1	Pass
RECEIVER PARAMETERS			
4.3.7	Spurious Emissions (Radiated)	Applicable	Pass
4.3.7	Spurious Emissions (Conducted)	Applicable	Pass

NOTE: 1. The emission of the transmitter on standby mode is equal to that of receiving mode.



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2.1 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	FSP 40	100037	Aug. 09, 2008	Aug. 08, 2009
Juniper Pre_Amplifier	8447D	2944A10626	Feb. 28, 2009	Feb. 27, 2010
HP Pre_Amplifier	8449B	3008A01922	Sep. 25, 2008	Sep. 24, 2009
Schwarzbeck antenna	9168	162	NA	NA
EMCO Horn_Antenna	3115	00028262	May 28, 2008	May 27, 2009
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 27, 2009	Jan. 26, 2010
Software	ADT_Radiated_V7.6.15.9.2	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA
Anritsu Power meter	ML2495A	0824006	July 03, 2008	July 02, 2009
Anritsu Power sensor	MA2411B	0738172	July 03, 2008	July 02, 2009
Agilent Signal generator	E8241A	US42110446	Aug.12, 2008	Aug.11, 2009

NOTE: 1. The test was performed in RF Chamber No. E.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	FSP 40	100036	Dec. 09, 2008	Dec. 08, 2009
Anritsu Power meter	ML2495A	0824006	June 14, 2008	June 13, 2009
Anritsu Power sensor	MA2411B	0738172	Apr. 17, 2008	Apr. 16, 2009
Electronics AC Power Source	6502	1140503	NA	NA
OVEN	MHU-225AU	911033	Dec. 18, 2008	Dec. 17, 2009
DC Power Supply	GPC - 3030D	7700087	NA	NA
Agilent Signal generator	E8241A	US42110446	Oct. 28, 2008	Oct. 27, 2009

NOTE: 1. The test was performed in Oven room.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT:

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

Parameter	Uncertainty
Radio Frequency	$\pm 1.132 \times 10^{-6}$
Total RF power, conducted	$\pm 1.017 \text{ dB}$
RF power density, conducted	$\pm 1.017 \text{ dB}$
All emissions, radiated	$\pm 2.855 \text{ dB}$
Temperature	$\pm 0.7^\circ \text{C}$
Humidity	$\pm 2.5\%$
DC and low frequency voltages	$\pm 0.04\%$

2.3 MAXIMUM MEASUREMENT UNCERTAINTY

For the test methods, according to ETSI EN 300 328 standard, the measurement uncertainty figures shall be calculated in accordance with ETR 100 028-1 [4] and shall correspond to an expansion factor (coverage factor) $k = 1,96$ or $k = 2$ (which provide confidence levels of respectively 95 % and 95,45 % in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian)).

Maximum measurement uncertainty

Parameter	Uncertainty
Radio frequency	$\pm 1 \times 10^{-5}$
Total RF power, conducted	$\pm 1.5 \text{ dB}$
RF power density, conducted	$\pm 3.0 \text{ dB}$
All emissions, radiated	$\pm 6.0 \text{ dB}$
Temperature	$\pm 1^\circ \text{C}$
Humidity	$\pm 5.0 \%$
DC and low frequency voltages	$\pm 3.0 \%$

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	WIRELESS-BGN 2X2 NETWORK MINI PCIE ADAPTER
MODEL NO.	WLE200N2
SOURCE VOLTAGE	Vnom= 230Vac Vmin= 207Vac Vmax= 253Vac
POWER SUPPLY	DC 3.3V from host equipment
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11 / 5.5 / 2 / 1Mbps 802.11a / g: 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6Mbps HT20 MCS0~7 (800ns GI): 65 / 58.5 / 52 / 39 / 26 / 19.5 / 13 / 6.5Mbps. HT20 MCS8~15 (800ns GI): 130 / 117 / 104 / 78 / 52 / 39 / 26 / 13Mbps. HT40 MCS0~7 (800ns GI): 135 / 121.5 / 108 / 81 / 54 / 40.5 / 27 / 13.5Mbps. HT40 MCS8~15 (800ns GI): 270 / 243 / 216 / 162 / 108 / 81 / 54 / 27Mbps. HT40 MCS0~7 (400ns GI): 150 / 135 / 120 / 90 / 60 / 45 / 30 / 15 Mbps. HT40 MCS8~15 (400ns GI): 300 / 270 / 240 / 180 / 120 / 90 / 60 / 30 Mbps.
OPERATING FREQUENCY	For 802.11b, 802.11g, 802.11n (20MHz): 2412 ~ 2472 MHz For 802.11n (40MHz): 2422 ~ 2462 MHz
NUMBER OF CHANNEL	For 802.11b, 802.11g, 802.11n (20MHz): 13 For 802.11n (40MHz): 9

RATED RF OUTPUT POWER (FOR CCK)	19.79dBm (Measured Max. Average)
RATED RF OUTPUT POWER (FOR OFDM)	18.71dBm (Measured Max. Average)
RATED RF OUTPUT POWER (FOR 802.11n (20MHz))	18.43dBm (Measured Max. Average)
RATED RF OUTPUT POWER (FOR 802.11n (40MHz))	19.97dBm (Measured Max. Average)
TEMPERATURE RANGE	-20°C ~ 55°C
ANTENNA TYPE	Please see note
DATA CABLE	NA
I/O PORT	NA
ASSOCIATED DEVICES	NA

NOTE:

1. There are two sets of antennas provided to this EUT, please refer to the following table:

Set 1					
Transmitter Circuit	Brand	Model	Antenna Type	Antenna Gain (dBi)	Antenna Connector
Chain(0)	Inpaq	DAMA1BM3000402	Dipole	3.2	RPSMA
Chain(1)	Inpaq	DAMA1BM3000402	Dipole	3.2	RPSMA
Set 2					
Transmitter Circuit	Brand	Model	Antenna Type	Antenna Gain (dBi)	Antenna Connector
Chain(0)	Wistron	81.EBJ15.005	PIFA	3.6	IPEX
Chain(1)	Wistron	81.EBJ15.005	PIFA	3.6	IPEX

2. The EUT incorporates CDD function with 802.11b, 802.11g and MIMO function with 802.11n .
3. The EUT is 2 * 2 spatial MIMO (2Tx & 2Rx) without beam forming function. The antenna configurations are two transmitter antennas and two receiver antennas, as there are 2 Dipole antennas or PIFA antennas. Spatial multiplexing modes for simultaneous transmission using 2 antennas, and for simultaneous receiver using 2 antennas.

4. There are two different versions of DUT, the only difference is version -141 has switch regulator installed, and version -041 has the transistors installed instead of switch regulator. The worst-case scenario has been investigated with the same output power, which version -141 shows the worst results. The test data reflects the worst-case scenarios.

5. The EUT was pre-tested under the following modes:

Test Mode	Data rate
Mode A	400ns GI
Mode B	800ns GI

From the above modes, the worst case was found in **Mode B**. Therefore only the test data of the mode was recorded in this report.

6. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 OUTPUT POWERS WITH VARIABLE ANTENNAS

3.2.1 WORST-CASE TESTING ON ANTENNA VARIABLES

All tests were performed with the highest output power settings, where applicable to calculation, an antenna gain of 0dBi.

For antenna gains between 0dBi and the maximum possible gains (3.6dBi) at lower power settings, EIRP, Power Density, Frequency Range tests were performed.

Preliminary test results demonstrate that the cabinet radiation shows only insignificant changes as a function of power level, over the range of power levels documented in this report. The final radiated and conducted spurious emissions were measured with the power set to the highest settings.

3.2.2 OUTPUT POWER WITH VARIABLE ANTENNAS UNDER NORMAL ENVIRONMENTAL CONDITIONS:

3.2.2.1 OUTPUT POWERS WITH THE HIGHEST GAIN OF ANTENNA (3.6dBi):

(The EIRP results are from section 4.1)

The conducted power from combined TX power for both chains.

802.11b Mode:

CONDUCTED POWER (dBm)		
(CH1) 2412 MHz	(CH7) 2442 MHz	(CH13) 2472 MHz
16.16	16.19	15.86

802.11g Mode:

CONDUCTED POWER (dBm)		
(CH1) 2412 MHz	(CH7) 2442 MHz	(CH13) 2472 MHz
15.11	14.47	14.91

802.11n Standard-20 MHz Mode:

CONDUCTED POWER (dBm)		
(CH1) 2412 MHz	(CH7) 2442 MHz	(CH13) 2472 MHz
14.83	14.16	14.71

802.11n Wide-40 MHz Mode:

CONDUCTED POWER (dBm)		
(CH1) 2422 MHz	(CH3) 2432 MHz	(CH9) 2462 MHz
15.24	14.76	16.37

3.2.2.2 OUTPUT POWERS WITH THE LOWEST GAIN OF ANTENNA (0dBi):

(The power results are from section 4.1)

802.11b Mode:

CONDUCTED POWER (dBm)		
(CH1) 2412 MHz	(CH7) 2442 MHz	(CH13) 2472 MHz
19.76	19.79	19.46

802.11g Mode:

CONDUCTED POWER (dBm)		
(CH1) 2412 MHz	(CH7) 2442 MHz	(CH13) 2472 MHz
18.71	18.07	18.51

802.11n Standard-20 MHz Mode:

CONDUCTED POWER (dBm)		
(CH1) 2412 MHz	(CH7) 2442 MHz	(CH13) 2472 MHz
18.43	17.76	18.31

802.11n Wide-40 MHz Mode:

CONDUCTED POWER (dBm)		
(CH1) 2422 MHz	(CH3) 2432 MHz	(CH9) 2462 MHz
18.84	18.36	19.97

Output powers with variable gains of antenna (between 0DBI and highest gain):

802.11b Mode

Low Channel Average Conducted Power = 19.76dBm - Antenna Assembly Gain or 16.16dBm, whichever is higher;

Mid Channels Average Conducted Power = 19.79dBm - Antenna Assembly Gain or 16.19dBm, whichever is higher;

High Channel Average Conducted Power = 19.46dBm - Antenna Assembly Gain or 15.86dBm, whichever is higher;

802.11g Mode

Low Channel Average Conducted Power = 18.71dBm - Antenna Assembly Gain or 15.11dBm, whichever is higher;

Mid Channels Average Conducted Power = 18.07dBm - Antenna Assembly Gain or 14.47dBm, whichever is higher;

High Channel Average Conducted Power = 18.51dBm - Antenna Assembly Gain or 14.91dBm, whichever is higher;

802.11n Standard-20 MHz Mode

Low Channel Average Conducted Power = 18.43dBm - Antenna Assembly Gain or 14.83dBm, whichever is higher;

Mid Channels Average Conducted Power = 17.76dBm - Antenna Assembly Gain or 14.16dBm, whichever is higher;

High Channel Average Conducted Power = 18.31dBm - Antenna Assembly Gain or 14.71dBm, whichever is higher;

802.11n Wide-40 MHz Mode

Low Channel Average Conducted Power = 18.84dBm - Antenna Assembly Gain or 15.24dBm, whichever is higher;

Mid Channels Average Conducted Power = 18.36dBm - Antenna Assembly Gain or 14.76dBm, whichever is higher;

High Channel Average Conducted Power = 19.97dBm - Antenna Assembly Gain or 16.37dBm, whichever is higher;

3.3 DESCRIPTION OF TEST MODES

Thirteen channels are provided for 802.11b, 802.11g, 802.11n (20MHz):

Channel	Frequency	Channel	Frequency
1	2412 MHz	8	2447 MHz
2	2417 MHz	9	2452 MHz
3	2422 MHz	10	2457 MHz
4	2427 MHz	11	2462 MHz
5	2432 MHz	12	2467 MHz
6	2437 MHz	13	2472 MHz
7	2442 MHz		

Nine channels are provided for 802.11n (40MHz):

Channel	Frequency	Channel	Frequency
3	2422 MHz	8	2447 MHz
4	2427 MHz	9	2452 MHz
5	2432 MHz	10	2457 MHz
6	2437 MHz	11	2462 MHz
7	2442 MHz		

3.4 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

COMBINATION MODE:

COMBINATION MODE	OPERATION MODE	CHAIN(0) (TX)	CHAIN(1) (TX)
A	802.11b	√	√
B	802.11g	√	√
C	802.11n(20MHz)	√	√
D	802.11n(40MHz)	√	√

Note:

- The above information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

EUT CONFIGURE MODE	APPLICABLE TO					DESCRIPTION
	EIRP	PPD	FR	SE<1G	SE≥1G	
-	√	√	√	√	√	-

Where **EIRP**: Equivalent Isotropic Radiated Power **PPD**: Peak Power Density
FR: Frequency Range **SE<1G**: Spurious Emissions below 1GHz
SE≥1G: Spurious Emissions above 1GHz

EQUIVALENT ISOTROPIC RADIATED POWER TEST:

- ☒ 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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	COMBINATION
802.11b	1 to 13	1, 7, 13	DSSS	DBPSK	1	A
802.11g	1 to 13	1, 7, 13	OFDM	BPSK	6	B
802.11n (20MHz)	1 to 13	1, 7, 13	OFDM	BPSK	6.5	C
802.11n (40MHz)	3 to 11	3, 7, 11	OFDM	BPSK	13.5	D

PEAK POWER DENSITY TEST:

- ☒ 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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	COMBINATION
802.11b	1 to 13	1, 7, 13	DSSS	DBPSK	1	A
802.11g	1 to 13	1, 7, 13	OFDM	BPSK	6	B
802.11n (20MHz)	1 to 13	1, 7, 13	OFDM	BPSK	6.5	C
802.11n (40MHz)	3 to 11	3, 7, 11	OFDM	BPSK	13.5	D

FREQUENCY RANGE TEST:

- ☒ 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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	COMBINATION
802.11b	1 to 13	1, 7, 13	DSSS	CCK	1	A
802.11g	1 to 13	1, 7, 13	OFDM	BPSK	6	B
802.11n (20MHz)	1 to 13	1, 7, 13	OFDM	BPSK	6.5	C
802.11n (40MHz)	3 to 11	3, 7, 11	OFDM	BPSK	13.5	D

SPURIOUS EMISSIONS TEST (BELOW 1 GHz):

- ☒ 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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	COMBINATION
802.11n (40MHz)	3 to 11	3, 5, 11	OFDM	BPSK	13.5	D
Receiver 802.11n (40MHz)	3 to 11	11	-	-	-	-

SPURIOUS EMISSIONS TEST (ABOVE 1 GHz):

- ☒ 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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	COMBINATION
802.11b	1 to 13	1, 7, 13	DSSS	DBPSK	1	A
802.11g	1 to 13	1, 7, 13	OFDM	BPSK	6	B
802.11n (20MHz)	1 to 13	1, 7, 13	OFDM	BPSK	6.5	C
802.11n (40MHz)	3 to 11	3, 5, 11	OFDM	BPSK	13.5	D
Receiver 802.11n (40MHz)	3 to 11	11	-	-	-	-

3.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product. According to the specifications of the manufacturers, it must comply with the requirements of the following standard:

EN 300 328 V1.7.1 (2006-10)

All tests have been performed and recorded as per the above standard.

3.6 DESCRIPTION OF SUPPORT UNITS

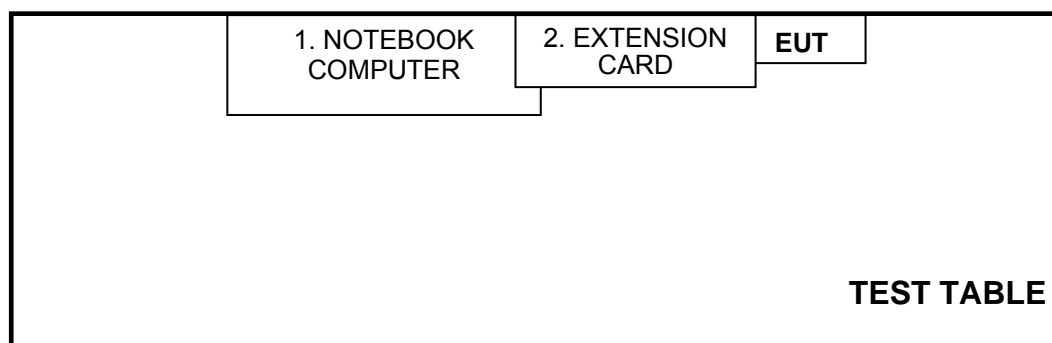
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	lenove	0769	0769AUU	FCC DoC
2	EXTENSION CARD	Atheros	NA	NA	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	NA

NOTE: All power cords of the above support units are non shielded (1.8m).

3.7 CONFIGURATION OF SYSTEM UNDER TEST



4 TEST PROCEDURES AND RESULTS

TRANSMITTER PARAMETERS

4.1 EQUIVALENT ISOTROPIC RADIATED POWER

4.1.1 LIMITS OF EQUIVALENT ISOTROPIC RADIATED POWER

CONDITION	FREQUENCY RANGE	LIMIT (e.i.r.p)
Under all test conditions	2400 ~ 2483.5 MHz	AV: 20dBm / -10dBW

4.1.2 TEST PROCEDURE

Refer to chapter 5.7.2 of ETSI EN 300 328 V1.7.1 (2006-10).

4.1.3 DEVIATION FROM TEST STANDARD

No deviation

4.1.4 TEST SETUP

The test Setup has been constructed as the normal and extreme test conditions. In case of conducted measurements the transmitter shall be connected to the measuring equipment via a suitable attenuator. The RF power as defined in EN 300 328 clause 4.3.1 shall be measured and recorded. Controlling software (ART v0 9 b14) has been activated to set the EUT on specific status.

4.1.5 TEST RESULTS – 802.11b <ANTENNA GAIN: 3.6dBi>

OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz		
OPERATING MODE	NORMAL MODE	MODULATION TYPE	DBPSK
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH	TRANSFER BIT RATE	1Mbps
TESTED BY	Frank Liu	DUTY CYCLE OF EUT	100%

TEST CONDITION			EIRP POWER (dBm)		
			(CH1) 2412 MHZ	(CH7) 2442 MHz	(CH13) 2472 MHz
Tnom(°C)	25	Vnom(v)	19.16	18.86	19.06
Tmin(°C)	-20	Vmin(v)	19.76	19.76	19.46
		Vmax(v)	19.73	19.79	19.45
Tmax(°C)	55	Vmin(v)	18.76	18.66	18.46
		Vmax(v)	18.80	18.63	18.44

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4.1.6 TEST RESULTS – 802.11g <ANTENNA GAIN: 3.6dBi>

OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz		
OPERATING MODE	NORMAL MODE	MODULATION TYPE	BPSK
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH	TRANSFER BIT RATE	6Mbps
TESTED BY	Frank Liu	DUTY CYCLE OF EUT	100%

TEST CONDITION			EIRP POWER (dBm)		
			(CH1) 2412 MHZ	(CH7) 2442 MHz	(CH13) 2472 MHz
Tnom(°C)	25	Vnom(v)	17.91	17.64	17.71
Tmin(°C)	-20	Vmin(v)	18.71	18.04	18.51
		Vmax(v)	18.68	18.07	18.50
Tmax(°C)	55	Vmin(v)	18.21	17.91	17.81
		Vmax(v)	18.25	17.88	17.79



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4.1.7 TEST RESULTS –802.11n (20MHz) <ANTENNA GAIN: 3.6dBi>

OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz		
OPERATING MODE	NORMAL MODE	MODULATION TYPE	BPSK
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH	TRANSFER BIT RATE	6.5Mbps
TESTED BY	Frank Liu	DUTY CYCLE OF EUT	100%

TEST CONDITION			EIRP POWER (dBm)		
			(CH1) 2412 MHZ	(CH7) 2442 MHZ	(CH13) 2472 MHZ
Tnom(°C)	25	Vnom(v)	17.73	17.03	17.51
Tmin(°C)	-20	Vmin(v)	18.43	17.73	18.31
		Vmax(v)	18.40	17.76	18.30
Tmax(°C)	55	Vmin(v)	17.83	17.33	17.61
		Vmax(v)	17.87	17.30	17.59



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4.1.8 TEST RESULTS –802.11n (40MHz) <ANTENNA GAIN: 3.6dBi>

OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz		
OPERATING MODE	NORMAL MODE	MODULATION TYPE	BPSK
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH	TRANSFER BIT RATE	13.5Mbps
TESTED BY	Frank Liu	DUTY CYCLE OF EUT	100%

TEST CONDITION			EIRP POWER (dBm)		
			(CH3) 2412 MHZ	(CH7) 2442 MHZ	(CH11) 2462 MHZ
Tnom(°C)	25	Vnom(v)	18.47	18.37	18.87
Tmin(°C)	-20	Vmin(v)	18.84	18.74	19.97
		Vmax(v)	18.80	18.70	19.94
Tmax(°C)	55	Vmin(v)	18.74	18.64	19.77
		Vmax(v)	18.76	18.66	19.75

4.1.9 TEST RESULTS – 802.11b <ANTENNA GAIN: 0dBi>

OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz		
OPERATING MODE	NORMAL MODE	MODULATION TYPE	DBPSK
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH	TRANSFER BIT RATE	1Mbps
TESTED BY	Frank Liu	DUTY CYCLE OF EUT	100%

TEST CONDITION			EIRP POWER (dBm)		
			(CH1) 2412 MHZ	(CH7) 2442 MHz	(CH13) 2472 MHz
Tnom(°C)	25	Vnom(v)	19.16	18.86	19.06
Tmin(°C)	-20	Vmin(v)	19.76	19.76	19.46
		Vmax(v)	19.73	19.79	19.45
Tmax(°C)	55	Vmin(v)	18.76	18.66	18.46
		Vmax(v)	18.80	18.63	18.44



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4.1.10 TEST RESULTS – 802.11g <ANTENNA GAIN: 0dBi>

OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz		
OPERATING MODE	NORMAL MODE	MODULATION TYPE	BPSK
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH	TRANSFER BIT RATE	6Mbps
TESTED BY	Frank Liu	DUTY CYCLE OF EUT	100%

TEST CONDITION			EIRP POWER (dBm)		
			(CH1) 2412 MHZ	(CH7) 2442 MHz	(CH13) 2472 MHz
Tnom(°C)	25	Vnom(v)	17.91	17.64	17.71
Tmin(°C)	-20	Vmin(v)	18.71	18.04	18.51
		Vmax(v)	18.68	18.07	18.50
Tmax(°C)	55	Vmin(v)	18.21	17.91	17.81
		Vmax(v)	18.25	17.88	17.79



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4.1.11 TEST RESULTS –802.11n (20MHz) <ANTENNA GAIN: 0dBi>

OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz		
OPERATING MODE	NORMAL MODE	MODULATION TYPE	BPSK
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH	TRANSFER BIT RATE	6.5Mbps
TESTED BY	Frank Liu	DUTY CYCLE OF EUT	100%

TEST CONDITION			EIRP POWER (dBm)		
			(CH1) 2412 MHZ	(CH7) 2442 MHZ	(CH13) 2472 MHZ
Tnom(°C)	25	Vnom(v)	17.73	17.03	17.51
Tmin(°C)	-20	Vmin(v)	18.43	17.73	18.31
		Vmax(v)	18.40	17.76	18.30
Tmax(°C)	55	Vmin(v)	17.83	17.33	17.61
		Vmax(v)	17.87	17.30	17.59



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4.1.12 TEST RESULTS –802.11n (40MHz) <ANTENNA GAIN: 0dBi>

OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz		
OPERATING MODE	NORMAL MODE	MODULATION TYPE	BPSK
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH	TRANSFER BIT RATE	13.5Mbps
TESTED BY	Frank Liu	DUTY CYCLE OF EUT	100%

TEST CONDITION			EIRP POWER (dBm)		
			(CH3) 2422 MHZ	(CH7) 2442 MHZ	(CH11) 2462 MHZ
Tnom(°C)	25	Vnom(v)	18.47	18.37	18.87
Tmin(°C)	-20	Vmin(v)	18.84	18.74	19.97
		Vmax(v)	18.80	18.70	19.94
Tmax(°C)	55	Vmin(v)	18.74	18.64	19.77
		Vmax(v)	18.76	18.66	19.75

4.2 PEAK POWER DENSITY

4.2.1 LIMIT OF PEAK POWER DENSITY

CONDITION	FREQUENCY BAND	LIMIT (e.i.r.p.)
Under all test conditions	2400 ~ 2483.5 MHz	10dBm / 1MHz

4.2.2 TEST PROCEDURE

Refer to chapter 5.7.3 of ETSI EN 300 328 V1.7.1 (2006-10).

4.2.3 DEVIATION FROM TEST STANDARD

No deviation.

4.2.4 TEST SETUP

The test Setup has been constructed as the normal and extreme test conditions. In case of conducted measurements the transmitter shall be connected to the measuring equipment via a suitable attenuator. The peak power density as defined in EN 300 328 clause 4.3.2 shall be measured and recorded. Controlling software (ART v0 9 b14) has been activated to set the EUT on specific status.



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4.2.5 TEST RESULTS – 802.11b <ANTENNA GAIN: 3.6dBi>

OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz		
OPERATING MODE	NORMAL MODE	MODULATION TYPE	DBPSK
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH	TRANSFER BIT RATE	1Mbps
TESTED BY	Frank Liu	DUTY CYCLE OF EUT	100%

Channel Number	Channel Frequency (MHz)	RF Power (dBm/kHz) (e.i.r.p)	Limit (dBm/kHz) (e.i.r.p)	PASS/FAIL
1	2401.9794	9.94 /1000	10/1000	PASS
7	2442.9675	9.75 /1000	10/1000	PASS
13	2470.9810	9.43 /1000	10/1000	PASS



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4.2.6 TEST RESULTS – 802.11g<ANTENNA GAIN: 3.6dBi>

OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz		
OPERATING MODE	NORMAL MODE	MODULATION TYPE	BPSK
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH	TRANSFER BIT RATE	6Mbps
TESTED BY	Kent Liu	DUTY CYCLE OF EUT	100%

Channel Number	Channel Frequency (MHz)	RF Power (dBm/kHz) (e.i.r.p)	Limit (dBm/kHz) (e.i.r.p)	PASS/FAIL
1	2414.8502	6.15 /1000	10/1000	PASS
7	2444.6237	6.09 /1000	10/1000	PASS
13	2474.6357	6.03 /1000	10/1000	PASS



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4.2.7 TEST RESULTS –802.11n (20MHz) <ANTENNA GAIN: 3.6dBi>

OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz		
OPERATING MODE	NORMAL MODE	MODULATION TYPE	BPSK
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH	TRANSFER BIT RATE	6.5Mbps
TESTED BY	Kent Liu	DUTY CYCLE OF EUT	100%

Channel Number	Channel Frequency (MHz)	RF Power (dBm/kHz) (e.i.r.p)	Limit (dBm/kHz) (e.i.r.p)	PASS/FAIL
1	2418.2949	6.47 /1000	10/1000	PASS
7	2437.8880	5.51 /1000	10/1000	PASS
13	2474.6820	5.62 /1000	10/1000	PASS

4.2.8 TEST RESULTS –802.11n (40MHz) <ANTENNA GAIN: 3.6dBi>

OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz		
OPERATING MODE	NORMAL MODE	MODULATION TYPE	BPSK
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH	TRANSFER BIT RATE	13.5Mbps
TESTED BY	Kent Liu	DUTY CYCLE OF EUT	100%

Channel Number	Channel Frequency (MHz)	RF Power (dBm/kHz) (e.i.r.p)	Limit (dBm/kHz) (e.i.r.p)	PASS/FAIL
3	2412.7930	4.14 /1000	10/1000	PASS
7	2450.3780	0.49 /1000	10/1000	PASS
11	2464.1010	4.14 /1000	10/1000	PASS

4.2.9 TEST RESULTS – 802.11b <ANTENNA GAIN: 0dBi>

OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz		
OPERATING MODE	NORMAL MODE	MODULATION TYPE	DBPSK
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH	TRANSFER BIT RATE	1Mbps
TESTED BY	Frank Liu	DUTY CYCLE OF EUT	100%

Channel Number	Channel Frequency (MHz)	RF Power (dBm/kHz) (e.i.r.p)	Limit (dBm/kHz) (e.i.r.p)	PASS/FAIL
1	2401.9794	9.94 /1000	10/1000	PASS
7	2442.9675	9.75 /1000	10/1000	PASS
13	2470.9810	9.43 /1000	10/1000	PASS



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4.2.10 TEST RESULTS – 802.11g<ANTENNA GAIN: 0dBi>

OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz		
OPERATING MODE	NORMAL MODE	MODULATION TYPE	BPSK
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH	TRANSFER BIT RATE	6Mbps
TESTED BY	Kent Liu	DUTY CYCLE OF EUT	100%

Channel Number	Channel Frequency (MHz)	RF Power (dBm/kHz) (e.i.r.p)	Limit (dBm/kHz) (e.i.r.p)	PASS/FAIL
1	2414.8502	6.15 /1000	10/1000	PASS
7	2444.6237	6.09 /1000	10/1000	PASS
13	2474.6357	6.03 /1000	10/1000	PASS



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4.2.11 TEST RESULTS –802.11n (20MHz) <ANTENNA GAIN: 0dBi>

OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz		
OPERATING MODE	NORMAL MODE	MODULATION TYPE	BPSK
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH	TRANSFER BIT RATE	6.5Mbps
TESTED BY	Kent Liu	DUTY CYCLE OF EUT	100%

Channel Number	Channel Frequency (MHz)	RF Power (dBm/kHz) (e.i.r.p)	Limit (dBm/kHz) (e.i.r.p)	PASS/FAIL
1	2418.2949	6.47 /1000	10/1000	PASS
7	2437.8880	5.51 /1000	10/1000	PASS
13	2474.6820	5.62 /1000	10/1000	PASS



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4.2.12 TEST RESULTS –802.11N (40MHZ) <ANTENNA GAIN: 0DBI>

OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz		
OPERATING MODE	NORMAL MODE	MODULATION TYPE	BPSK
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH	TRANSFER BIT RATE	13.5Mbps
TESTED BY	Kent Liu	DUTY CYCLE OF EUT	100%

Channel Number	Channel Frequency (MHz)	RF Power (dBm/kHz) (e.i.r.p)	Limit (dBm/kHz) (e.i.r.p)	PASS/FAIL
3	2412.7930	4.14 /1000	10/1000	PASS
7	2450.3780	4.11 /1000	10/1000	PASS
11	2464.1010	4.14 /1000	10/1000	PASS

4.3 FREQUENCY RANGE

4.3.1 LIMITS OF FREQUENCY RANGE

Condition	Limit
Under all test conditions	$F_L > 2400.0\text{MHz}$ $F_H < 2483.5\text{MHz}$

4.3.2 TEST PROCEDURE

Refer to chapter 5.7.4 of ETSI EN 300 328 V1.7.1 (2006-10).

4.3.3 DEVIATION FROM TEST STANDARD

No deviation

4.3.4 TEST SETUP

The EUT and probe antenna was placed into the temperature oven. The probe has to be connected with spectrum analyzer. The power source of the EUT has to be connected with the power supply for voltage change. The frequency has to be recorded for the right and left end above threshold of highest and lowest channel respectively.

4.3.5 TEST RESULTS – 802.11b<ANTENNA GAIN: 3.6dBi>

OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz		
OPERATING MODE	NORMAL MODE	MODULATION TYPE	DBPSK
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH	TRANSFER BIT RATE	1Mbps
TESTED BY	Frank Liu	DUTY CYCLE OF EUT	100%

TEST CONDITION		FREQUENCY (MHz)	
		LOWEST	HIGHEST
Tnom 25°C	Vnom(v)	2403.10	2481.00
Tmin -20°C	Vmin(v)	2403.11	2480.90
	Vmax(v)	2403.10	2480.80
Tmax 55°C	Vmin(v)	2403.20	2480.99
	Vmax(v)	2403.15	2480.98
Measured frequencies (lowest and highest)		FL = 2403.10	FH = 2481.00

4.3.6 TEST RESULTS – 802.11g<ANTENNA GAIN: 3.6dBi>

OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz		
OPERATING MODE	NORMAL MODE	MODULATION TYPE	BPSK
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH	TRANSFER BIT RATE	6Mbps
TESTED BY	Frank Liu	DUTY CYCLE OF EUT	100%

TEST CONDITION		FREQUENCY (MHz)	
		LOWEST	HIGHEST
Tnom 25°C	Vnom(v)	2400.70	2482.70
Tmin -20°C	Vmin(v)	2400.20	2483.20
	Vmax(v)	2400.30	2483.30
Tmax 55°C	Vmin(v)	2400.40	2482.90
	Vmax(v)	2400.90	2482.80
Measured frequencies (lowest and highest)		FL = 2400.20	FH = 2483.30

4.3.7 TEST RESULTS –802.11n (20MHz) <ANTENNA GAIN: 3.6dBi>

OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz		
OPERATING MODE	NORMAL MODE	MODULATION TYPE	BPSK
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH	TRANSFER BIT RATE	6.5Mbps
TESTED BY	Frank Liu	DUTY CYCLE OF EUT	100%

TEST CONDITION		FREQUENCY (MHz)	
		LOWEST	HIGHEST
Tnom 25°C	Vnom(v)	2400.70	2483.00
Tmin -20°C	Vmin(v)	2400.40	2483.10
	Vmax(v)	2400.50	2483.15
Tmax 55°C	Vmin(v)	2400.20	2483.00
	Vmax(v)	2400.80	2482.90
Measured frequencies (lowest and highest)		FL = 2400.20	FH = 2483.15

4.3.8 TEST RESULTS –802.11n (40MHz) <ANTENNA GAIN: 3.6dBi>

OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz		
OPERATING MODE	NORMAL MODE	MODULATION TYPE	BPSK
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH	TRANSFER BIT RATE	13.5Mbps
TESTED BY	Frank Liu	DUTY CYCLE OF EUT	100%

TEST CONDITION		FREQUENCY (MHz)	
		LOWEST	HIGHEST
Tnom 25°C	Vnom(v)	2401.10	2482.20
Tmin -20°C	Vmin(v)	2400.70	2482.30
	Vmax(v)	2400.80	2482.30
Tmax 55°C	Vmin(v)	2401.00	2482.80
	Vmax(v)	2401.10	2482.40
Measured frequencies (lowest and highest)		FL = 2400.70	FH = 2482.80

4.3.9 TEST RESULTS – 802.11b<ANTENNA GAIN: 0dBi>

OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz		
OPERATING MODE	NORMAL MODE	MODULATION TYPE	DBPSK
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH	TRANSFER BIT RATE	1Mbps
TESTED BY	Frank Liu	DUTY CYCLE OF EUT	100%

TEST CONDITION		FREQUENCY (MHz)	
		LOWEST	HIGHEST
Tnom 25°C	Vnom(v)	2403.10	2481.00
Tmin -20°C	Vmin(v)	2403.11	2480.90
	Vmax(v)	2403.10	2480.80
Tmax 55°C	Vmin(v)	2403.20	2480.99
	Vmax(v)	2403.15	2480.98
Measured frequencies (lowest and highest)		FL = 2403.10	FH = 2481.00

4.3.10 TEST RESULTS – 802.11g<ANTENNA GAIN: 0dBi>

OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz		
OPERATING MODE	NORMAL MODE	MODULATION TYPE	BPSK
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH	TRANSFER BIT RATE	6Mbps
TESTED BY	Frank Liu	DUTY CYCLE OF EUT	100%

TEST CONDITION		FREQUENCY (MHz)	
		LOWEST	HIGHEST
Tnom 25°C	Vnom(v)	2400.70	2482.70
Tmin -20°C	Vmin(v)	2400.20	2483.20
	Vmax(v)	2400.30	2483.30
Tmax 55°C	Vmin(v)	2400.40	2482.90
	Vmax(v)	2400.90	2482.80
Measured frequencies (lowest and highest)		FL = 2400.20	FH = 2483.30

4.3.11 TEST RESULTS –802.11n (20MHz) <ANTENNA GAIN: 0dBi>

OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz		
OPERATING MODE	NORMAL MODE	MODULATION TYPE	BPSK
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH	TRANSFER BIT RATE	6.5Mbps
TESTED BY	Frank Liu	DUTY CYCLE OF EUT	100%

TEST CONDITION		FREQUENCY (MHz)	
		LOWEST	HIGHEST
Tnom 25°C	Vnom(v)	2400.70	2483.00
Tmin -20°C	Vmin(v)	2400.40	2483.10
	Vmax(v)	2400.50	2483.15
Tmax 55°C	Vmin(v)	2400.20	2483.00
	Vmax(v)	2400.80	2482.90
Measured frequencies (lowest and highest)		FL = 2400.20	FH = 2483.15

4.3.12 TEST RESULTS –802.11n (40MHz) <ANTENNA GAIN: 0dBi>

OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz		
OPERATING MODE	NORMAL MODE	MODULATION TYPE	BPSK
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH	TRANSFER BIT RATE	13.5Mbps
TESTED BY	Frank Liu	DUTY CYCLE OF EUT	100%

TEST CONDITION		FREQUENCY (MHz)	
		LOWEST	HIGHEST
Tnom 25°C	Vnom(v)	2401.10	2482.20
Tmin -20°C	Vmin(v)	2400.70	2482.30
	Vmax(v)	2400.80	2482.30
Tmax 55°C	Vmin(v)	2401.00	2482.80
	Vmax(v)	2401.10	2482.40
Measured frequencies (lowest and highest)		FL = 2400.70	FH = 2482.80

4.4 TRANSMITTER SPURIOUS EMISSIONS

4.4.1 LIMITS OF TRANSMITTER SPURIOUS EMISSIONS

Transmitter limits for narrowband spurious emissions

Frequency Range	Operating Limit	Standby Limit
30MHz ~ 1GHz	-36dBm	-57dBm
Above 1GHz ~ 12.75GHz	-30dBm	-47dBm
1.8~1.9GHz 5.15~5.3GHz	-47dBm	-47dBm

4.4.2 TEST PROCEDURE

Refer to chapter 5.7.5 of ETSI EN 300 328 V1.7.1 (2006-10).

The level of spurious emissions shall be measured as:

Their power in a specified load (conducted spurious emissions) and their effective radiated power when radiated by the cabinet or structure of the equipment (cabinet radiation).

4.4.3 DEVIATION FROM TEST STANDARD

No deviation.

4.4.4 TEST SETUP

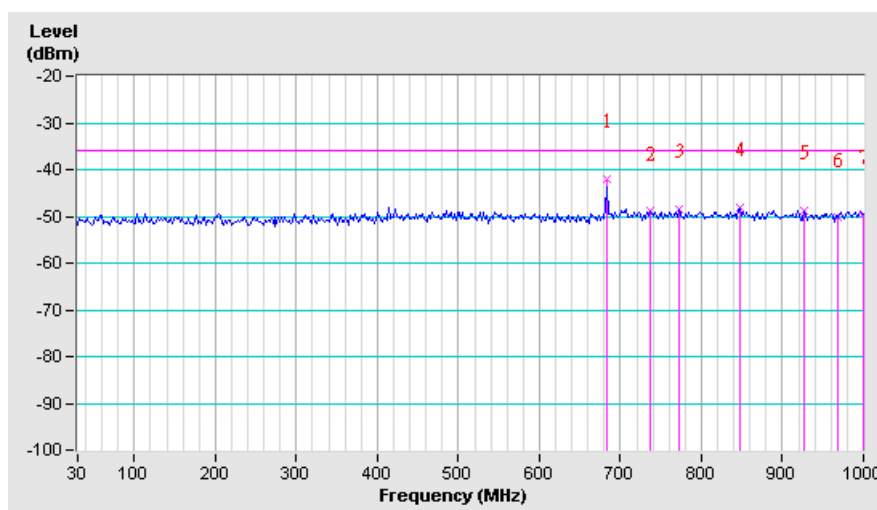
The test setup has been constructed as the normal use condition. The EUT was placed on the turn-table. Controlling software (ART v0 9 b14) has been activated to set the EUT on specific status.

4.4.5 TEST RESULTS ON CONDUCTED SPURIOUS EMISSION

4.4.5.1 Below 1GHz conducted spurious emission

MODULATION TYPE	DBPSK	ENVIRONMENTAL CONDITIONS	23deg.C, 63%RH
OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz	DUTY CYCLE OF EUT	100%
SPURIOUS EMISSION FREQUENCY RANGE	30MHz ~ 1GHz	TESTED BY	Kent Liu

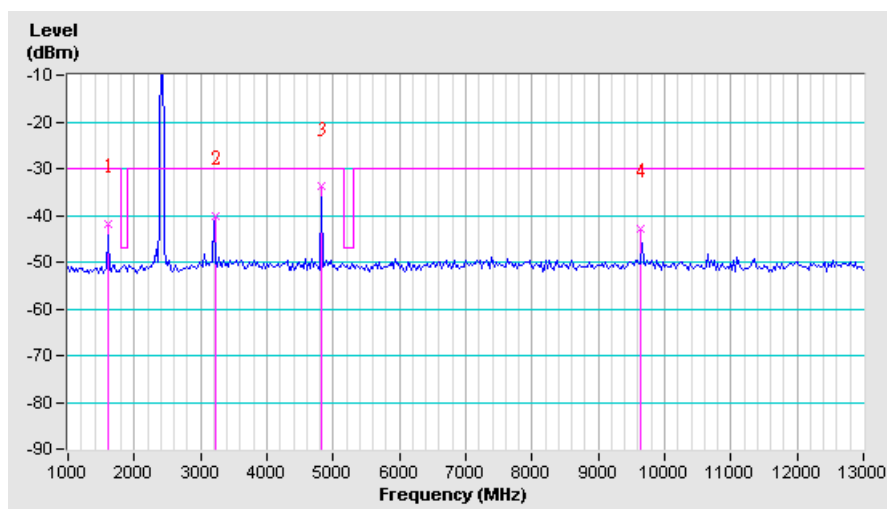
SPURIOUS EMISSION LEVEL			
Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin
683.78	-41.99	-36.00	-5.99
736.16	-48.91	-36.00	-12.91
773.02	-48.55	-36.00	-12.55
846.74	-48.05	-36.00	-12.05
926.28	-48.84	-36.00	-12.84
968.96	-50.26	-36.00	-14.26
1000.00	-49.58	-36.00	-13.58



4.4.5.2 Above 1GHz conducted spurious emission on b mode

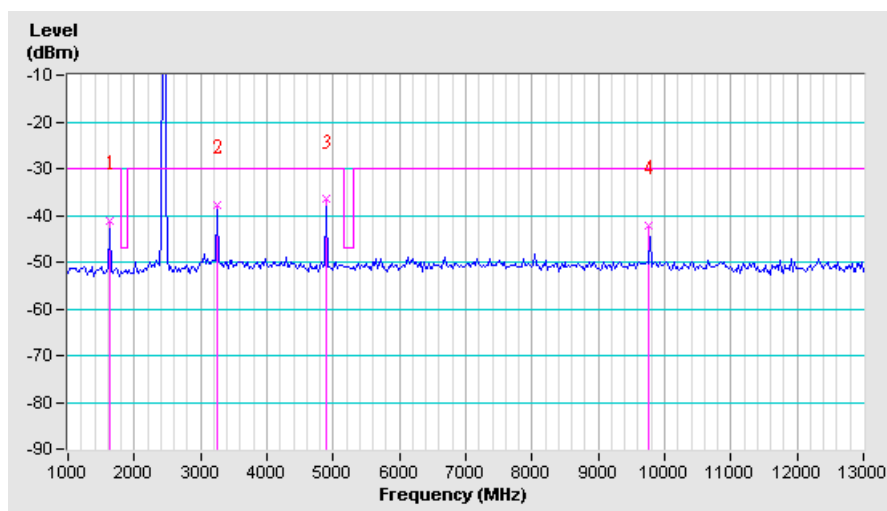
OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz	MODULATION TYPE	DBPSK
SPURIOUS EMISSION FREQUENCY RANGE	1GHz~12.75GHz	TRANSFER BIT RATE	1Mbps
ENVIRONMENTAL CONDITIONS	23deg.C, 63%RH	OPERATING CHANNEL	1
DUTY CYCLE OF EUT	100%	TESTED BY	Kent Liu

SPURIOUS EMISSION LEVEL			
Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin
1607.98	-41.90	-30.00	-11.90
3215.98	-40.14	-30.00	-10.14
4823.98	-33.85	-30.00	-3.85
9647.95	-42.73	-30.00	-12.73



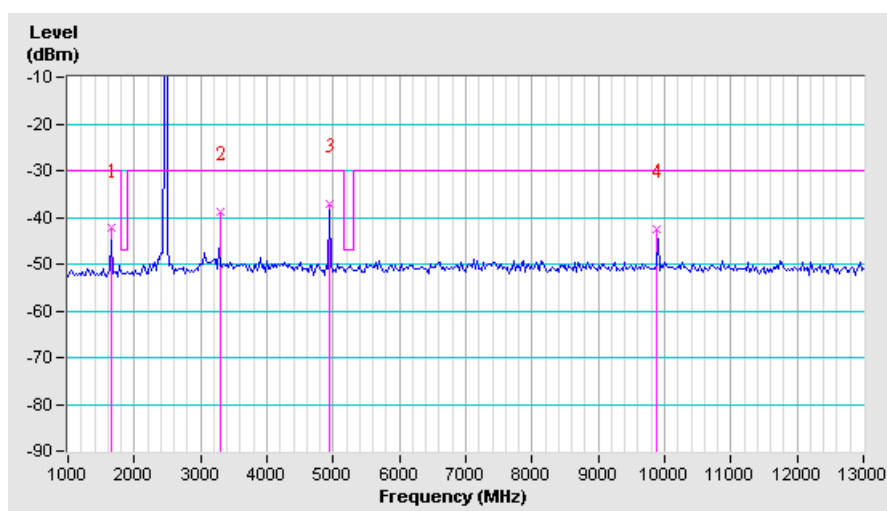
OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz	MODULATION TYPE	DBPSK
SPURIOUS EMISSION FREQUENCY RANGE	1GHz~12.75GHz	TRANSFER BIT RATE	1Mbps
ENVIRONMENTAL CONDITIONS	23deg.C, 63%RH	OPERATING CHANNEL	7
DUTY CYCLE OF EUT	100%	TESTED BY	Kent Liu

SPURIOUS EMISSION LEVEL			
Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin
1627.98	-41.22	-30.00	-11.22
3255.97	-37.71	-30.00	-7.71
4883.97	-36.56	-30.00	-6.56
9767.96	-42.26	-30.00	-12.26



OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz	MODULATION TYPE	DBPSK
SPURIOUS EMISSION FREQUENCY RANGE	1GHz~12.75GHz	TRANSFER BIT RATE	1Mbps
ENVIRONMENTAL CONDITIONS	23deg.C, 63%RH	OPERATING CHANNEL	13
DUTY CYCLE OF EUT	100%	TESTED BY	Kent Liu

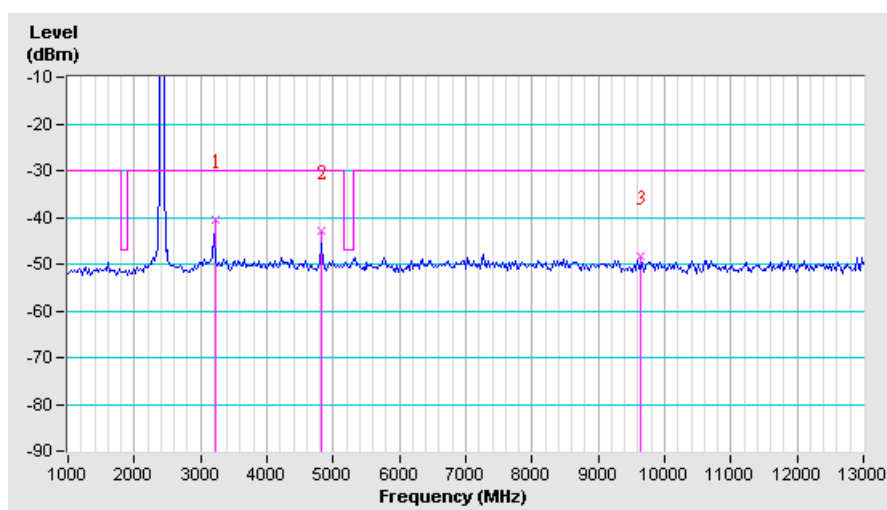
SPURIOUS EMISSION LEVEL			
Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin
1647.99	-42.37	-30.00	-12.37
3295.99	-38.88	-30.00	-8.88
4943.97	-37.09	-30.00	-7.09
9887.95	-42.42	-30.00	-12.42



4.4.5.3 Above 1GHz conducted spurious emission on g mode

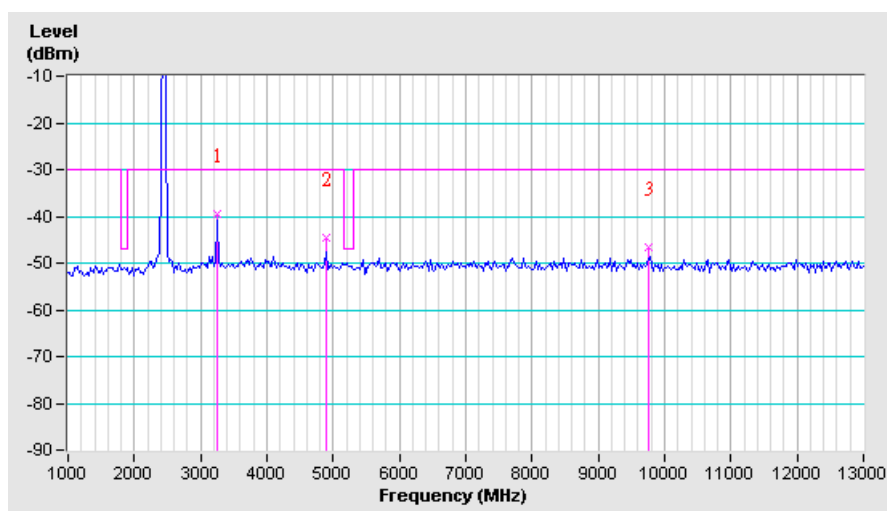
OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz	MODULATION TYPE	BPSK
SPURIOUS EMISSION FREQUENCY RANGE	1GHz~12.75GHz	TRANSFER BIT RATE	6Mbps
ENVIRONMENTAL CONDITIONS	23deg.C, 63%RH	OPERATING CHANNEL	1
DUTY CYCLE OF EUT	100%	TESTED BY	Kent Liu

SPURIOUS EMISSION LEVEL			
Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin
3215.97	-40.38	-30.00	-10.38
4823.98	-42.92	-30.00	-12.92
9647.94	-48.29	-30.00	-18.29



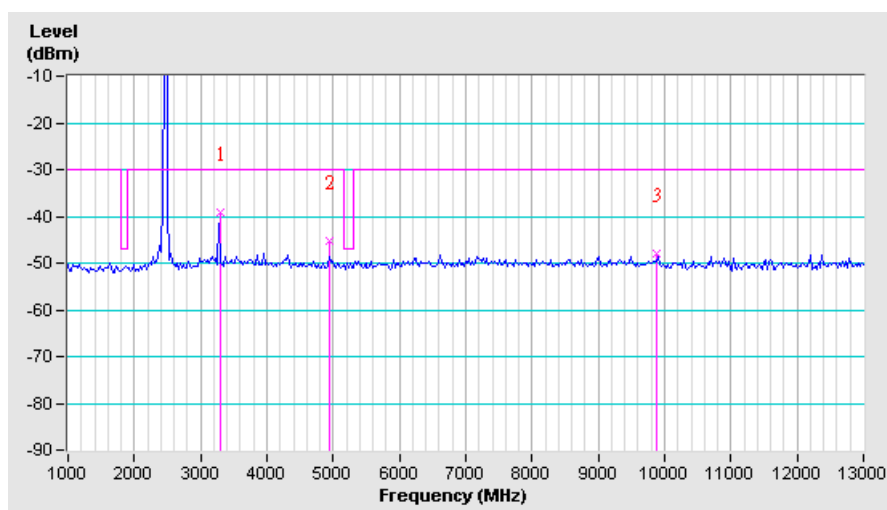
OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz	MODULATION TYPE	BPSK
SPURIOUS EMISSION FREQUENCY RANGE	1GHz~12.75GHz	TRANSFER BIT RATE	6Mbps
ENVIRONMENTAL CONDITIONS	23deg.C, 63%RH	OPERATING CHANNEL	7
DUTY CYCLE OF EUT	100%	TESTED BY	Kent Liu

SPURIOUS EMISSION LEVEL			
Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin
3255.98	-39.41	-30.00	-9.41
4884.93	-44.57	-30.00	-14.57
9767.98	-46.56	-30.00	-16.56



OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz	MODULATION TYPE	BPSK
SPURIOUS EMISSION FREQUENCY RANGE	1GHz~12.75GHz	TRANSFER BIT RATE	6Mbps
ENVIRONMENTAL CONDITIONS	23deg.C, 63%RH	OPERATING CHANNEL	13
DUTY CYCLE OF EUT	100%	TESTED BY	Kent Liu

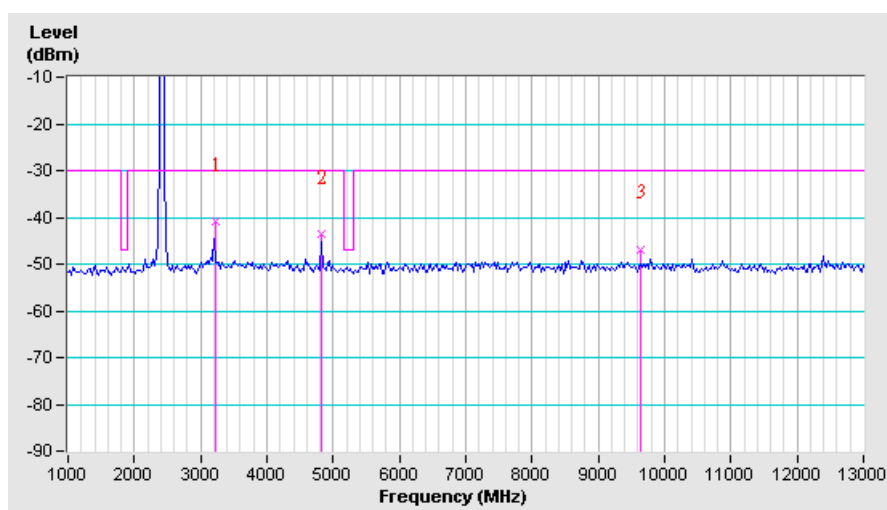
SPURIOUS EMISSION LEVEL			
Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin
3295.99	-39.04	-30.00	-9.04
4944.63	-45.10	-30.00	-15.10
9887.99	-47.88	-30.00	-17.88



4.4.5.4 Above 1GHz conducted spurious emission on HT20 mode

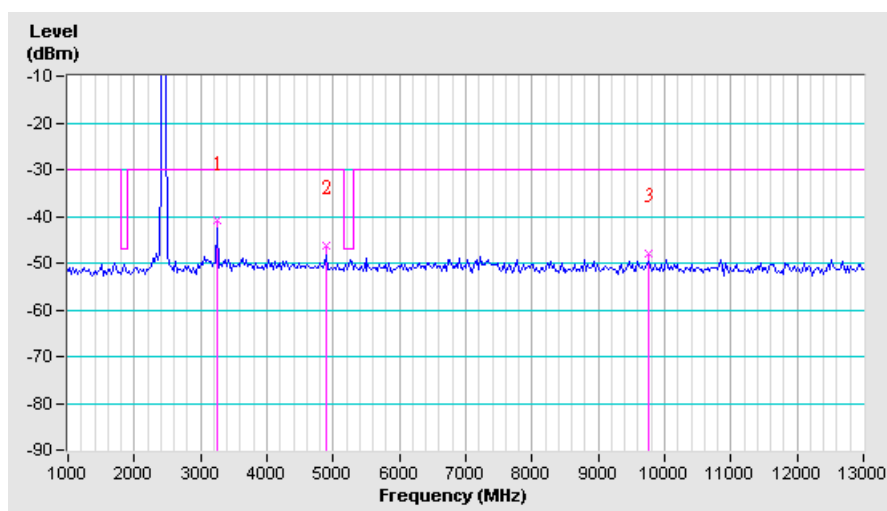
OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz	MODULATION TYPE	BPSK
SPURIOUS EMISSION FREQUENCY RANGE	1GHz~12.75GHz	TRANSFER BIT RATE	6.5Mbps
ENVIRONMENTAL CONDITIONS	23deg.C, 63%RH	OPERATING CHANNEL	1
DUTY CYCLE OF EUT	100%	TESTED BY	Kent Liu

SPURIOUS EMISSION LEVEL			
Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin
3215.99	-40.98	-30.00	-10.98
4822.70	-43.69	-30.00	-13.69
9648.02	-47.03	-30.00	-17.03



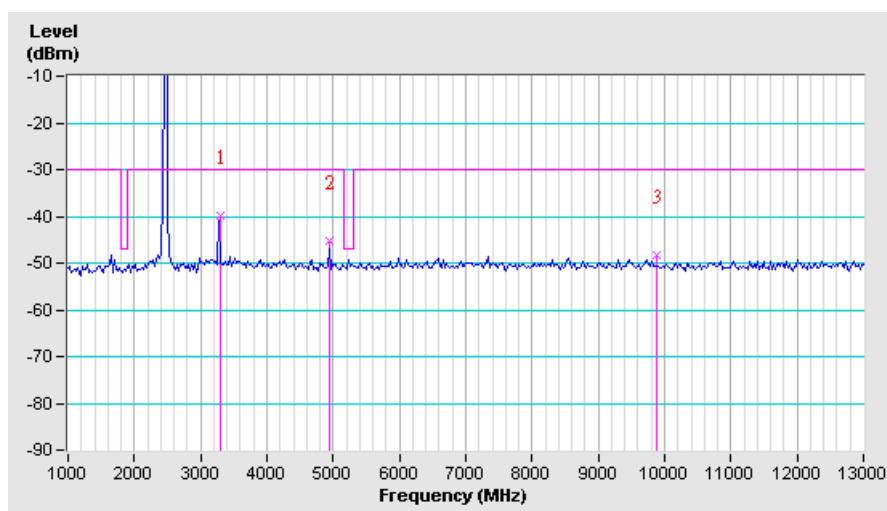
OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz	MODULATION TYPE	BPSK
SPURIOUS EMISSION FREQUENCY RANGE	1GHz~12.75GHz	TRANSFER BIT RATE	6.5Mbps
ENVIRONMENTAL CONDITIONS	23deg.C, 63%RH	OPERATING CHANNEL	7
DUTY CYCLE OF EUT	100%	TESTED BY	Kent Liu

SPURIOUS EMISSION LEVEL			
Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin
3255.96	-41.01	-30.00	-11.01
4883.99	-46.15	-30.00	-16.15
9767.94	-47.81	-30.00	-17.81



OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz	MODULATION TYPE	BPSK
SPURIOUS EMISSION FREQUENCY RANGE	1GHz~12.75GHz	TRANSFER BIT RATE	6.5Mbps
ENVIRONMENTAL CONDITIONS	23deg.C, 63%RH	OPERATING CHANNEL	13
DUTY CYCLE OF EUT	100%	TESTED BY	Kent Liu

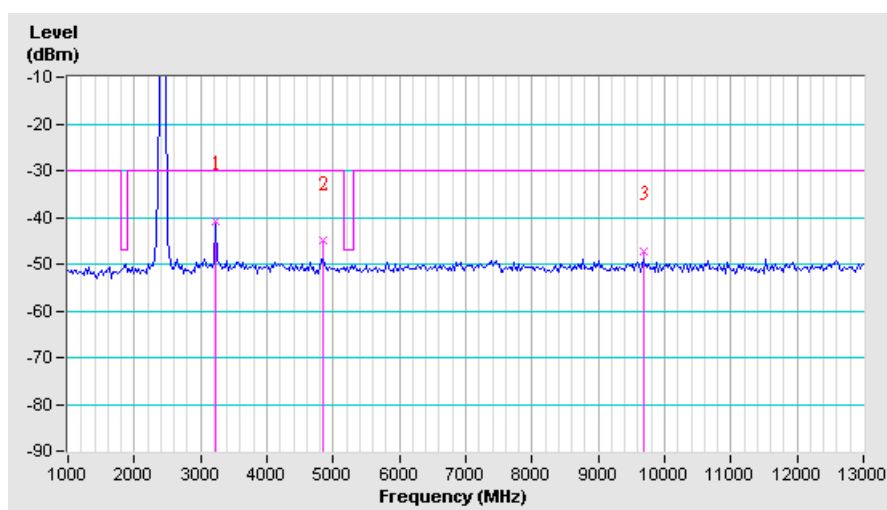
SPURIOUS EMISSION LEVEL			
Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin
3295.97	-39.80	-30.00	-9.80
4943.97	-45.23	-30.00	-15.23
9887.86	-48.16	-30.00	-18.16



4.4.5.5 Above 1GHz conducted spurious emission on HT40 mode

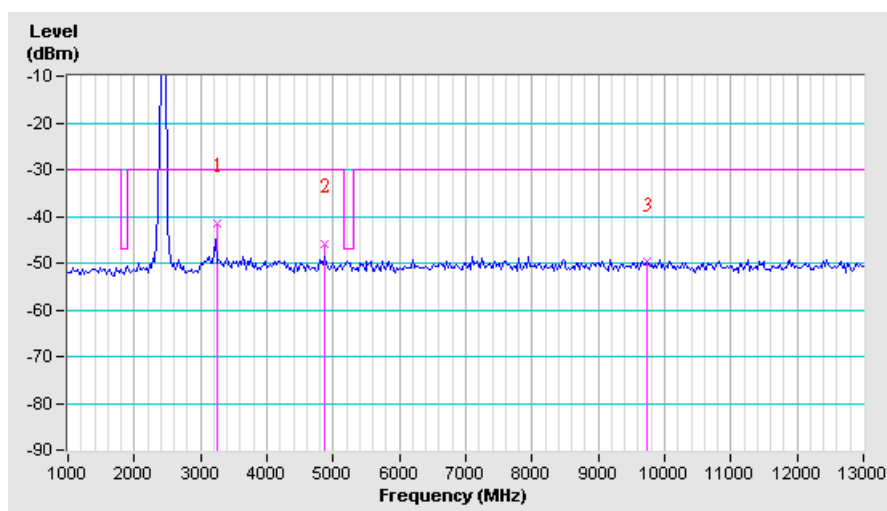
OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz	MODULATION TYPE	BPSK
SPURIOUS EMISSION FREQUENCY RANGE	1GHz~12.75GHz	TRANSFER BIT RATE	13.5Mbps
ENVIRONMENTAL CONDITIONS	23deg.C, 63%RH	OPERATING CHANNEL	3
DUTY CYCLE OF EUT	100%	TESTED BY	Kent Liu

SPURIOUS EMISSION LEVEL			
Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin
3229.31	-40.72	-30.00	-10.72
4843.59	-45.07	-30.00	-15.07
9687.94	-47.22	-30.00	-17.22



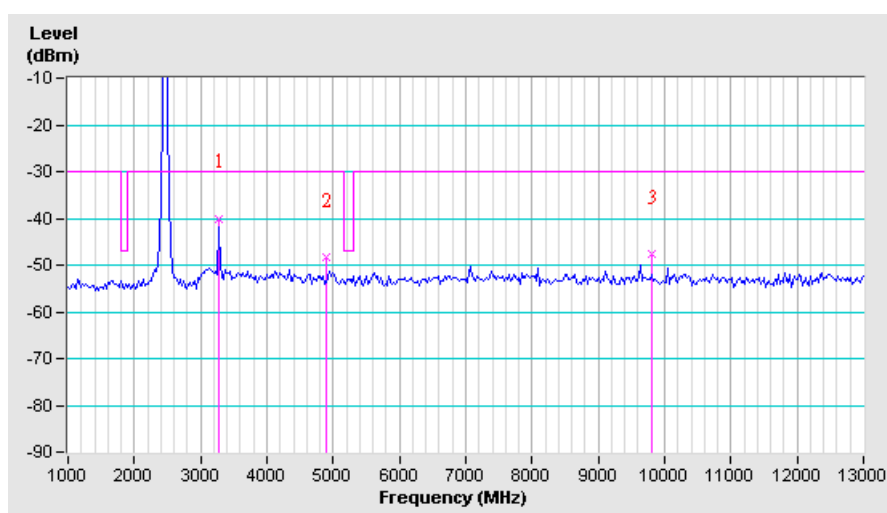
OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz	MODULATION TYPE	BPSK
SPURIOUS EMISSION FREQUENCY RANGE	1GHz~12.75GHz	TRANSFER BIT RATE	13.5Mbps
ENVIRONMENTAL CONDITIONS	23deg.C, 63%RH	OPERATING CHANNEL	5
DUTY CYCLE OF EUT	100%	TESTED BY	Kent Liu

SPURIOUS EMISSION LEVEL			
Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin
3242.67	-41.43	-30.00	-11.43
4865.21	-45.79	-30.00	-15.79
9727.94	-49.80	-30.00	-19.80



OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz	MODULATION TYPE	BPSK
SPURIOUS EMISSION FREQUENCY RANGE	1GHz~12.75GHz	TRANSFER BIT RATE	13.5Mbps
ENVIRONMENTAL CONDITIONS	23deg.C, 63%RH	OPERATING CHANNEL	11
DUTY CYCLE OF EUT	100%	TESTED BY	Kent Liu

SPURIOUS EMISSION LEVEL			
Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin
3269.31	-40.23	-30.00	-10.23
4904.00	-48.40	-30.00	-18.40
9807.92	-47.74	-30.00	-17.74



4.4.6 TEST RESULTS ON RADIATED SPURIOUS EMISSION

4.4.6.1 Below 1GHz radiated spurious emission

MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH
OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz	DUTY CYCLE OF EUT	100%
SPURIOUS EMISSION FREQUENCY RANGE	30MHz ~ 1GHz	TESTED BY	Nick Tsai

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin
148.26	V	-72.39	-36.00	-36.39
184.44	H	-70.55	-36.00	-34.55
185.52	V	-71.76	-36.00	-35.76
199.56	H	-66.37	-36.00	-30.37
200.10	V	-67.39	-36.00	-31.39
222.78	H	-63.78	-36.00	-27.78
222.78	V	-66.05	-36.00	-30.05
277.32	H	-69.68	-36.00	-33.68
288.12	H	-64.06	-36.00	-28.06
288.12	V	-68.35	-36.00	-32.35
297.30	V	-64.84	-36.00	-28.84
300.00	H	-58.22	-36.00	-22.22
323.80	H	-64.32	-36.00	-28.32
370.00	H	-61.75	-36.00	-25.75
370.00	V	-64.71	-36.00	-28.71
398.00	H	-64.85	-36.00	-28.85
498.80	H	-59.37	-36.00	-23.37
498.80	V	-63.91	-36.00	-27.91
519.80	H	-66.04	-36.00	-30.04
594.00	H	-66.13	-36.00	-30.13
594.00	V	-62.44	-36.00	-26.44
630.40	V	-67.27	-36.00	-31.27
742.40	V	-65.24	-36.00	-29.24
813.80	V	-67.25	-36.00	-31.25

NOTE: The emission behavior belongs to narrowband spurious emission.

4.4.6.2 Above 1GHz radiated spurious emission on b mode

OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz	MODULATION TYPE	DBPSK
SPURIOUS EMISSION FREQUENCY RANGE	1GHz~12.75GHz	TRANSFER BIT RATE	1Mbps
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	OPERATING CHANNEL	1 , 7 and 13
DUTY CYCLE OF EUT	100%	TESTED BY	Frank Liu

SPURIOUS EMISSION LEVEL					
Channel	Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin (dB)
1	3215.98	H	-63.43	-30.00	-33.43
	3216.00	V	-59.85	-30.00	-29.85
	4823.98	H	-40.43	-30.00	-10.43
	4823.98	V	-32.71	-30.00	-2.71
	9647.97	V	-53.30	-30.00	-23.30
	9647.98	H	-54.82	-30.00	-24.82
7	3255.99	H	-63.57	-30.00	-33.57
	3255.99	V	-59.64	-30.00	-29.64
	4883.98	H	-40.91	-30.00	-10.91
	4883.98	V	-35.59	-30.00	-5.59
	9767.96	H	-54.73	-30.00	-24.73
	9767.96	V	-51.02	-30.00	-21.02
13	3295.98	V	-60.08	-30.00	-30.08
	3295.99	H	-63.92	-30.00	-33.92
	4943.97	V	-36.61	-30.00	-6.61
	4943.98	H	-41.19	-30.00	-11.19
	9887.96	H	-52.80	-30.00	-22.80
	9887.96	V	-51.77	-30.00	-21.77

NOTE: The emission behavior belongs to narrowband spurious emission.



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4.4.6.3 Above 1GHz radiated spurious emission on g mode

OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz	MODULATION TYPE	BPSK
SPURIOUS EMISSION FREQUENCY RANGE	1GHz~12.75GHz	TRANSFER BIT RATE	6Mbps
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	OPERATING CHANNEL	1 , 7 and 13
DUTY CYCLE OF EUT	100%	TESTED BY	Frank Liu

SPURIOUS EMISSION LEVEL					
Channel	Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin (dB)
1	3215.98	V	-60.36	-30.00	-30.36
	3216.00	H	-63.05	-30.00	-33.05
	4820.24	H	-50.77	-30.00	-20.77
	4822.80	V	-44.15	-30.00	-14.15
	9647.98	V	-60.04	-30.00	-30.04
	9648.04	H	-59.09	-30.00	-29.09
7	3255.98	V	-61.22	-30.00	-31.22
	3255.99	H	-64.23	-30.00	-34.23
	4882.80	V	-44.99	-30.00	-14.99
	4885.20	H	-50.67	-30.00	-20.67
	9767.88	H	-58.27	-30.00	-28.27
	9767.95	V	-57.91	-30.00	-27.91
13	3295.98	V	-60.25	-30.00	-30.25
	3296.01	H	-64.43	-30.00	-34.43
	4942.76	V	-44.48	-30.00	-14.48
	4945.24	H	-50.18	-30.00	-20.18
	9888.00	V	-59.43	-30.00	-29.43
	9888.24	H	-60.31	-30.00	-30.31

NOTE: The emission behavior belongs to narrowband spurious emission.



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4.4.6.4 Above 1GHz radiated spurious emission on HT20 mode

OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz	MODULATION TYPE	BPSK
SPURIOUS EMISSION FREQUENCY RANGE	1GHz~12.75GHz	TRANSFER BIT RATE	6.5Mbps
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	OPERATING CHANNEL	1 , 7 and 13
DUTY CYCLE OF EUT	100%	TESTED BY	Frank Liu

SPURIOUS EMISSION LEVEL					
Channel	Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin (dB)
1	3215.98	H	-63.09	-30.00	-33.09
	3215.99	V	-60.43	-30.00	-30.43
	4822.72	V	-45.42	-30.00	-15.42
	4825.24	H	-50.39	-30.00	-20.39
	9647.96	V	-59.65	-30.00	-29.65
	9648.06	H	-59.82	-30.00	-29.82
7	3255.99	V	-60.75	-30.00	-30.75
	3256.00	H	-64.26	-30.00	-34.26
	4882.74	V	-43.77	-30.00	-13.77
	4885.30	H	-49.75	-30.00	-19.75
	9767.98	H	-58.64	-30.00	-28.64
	9767.98	V	-59.29	-30.00	-29.29
13	3295.98	V	-59.78	-30.00	-29.78
	3296.01	H	-64.29	-30.00	-34.29
	4944.00	V	-45.66	-30.00	-15.66
	4945.20	H	-51.68	-30.00	-21.68
	9888.00	H	-60.33	-30.00	-30.33
	9888.00	V	-61.32	-30.00	-31.32

NOTE: The emission behavior belongs to narrowband spurious emission.

4.4.6.5 Above 1GHz radiated spurious emission on HT40 mode

OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz	MODULATION TYPE	BPSK
SPURIOUS EMISSION FREQUENCY RANGE	1GHz~12.75GHz	TRANSFER BIT RATE	13.5Mbps
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	OPERATING CHANNEL	1 , 5 and 11
DUTY CYCLE OF EUT	100%	TESTED BY	Frank Liu

SPURIOUS EMISSION LEVEL					
Channel	Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin (dB)
3	3229.33	H	-63.38	-30.00	-33.38
	3229.34	V	-60.32	-30.00	-30.32
	4840.40	V	-49.17	-30.00	-19.17
	4845.30	H	-50.87	-30.00	-20.87
	9687.96	H	-59.63	-30.00	-29.63
	9687.96	V	-59.87	-30.00	-29.87
5	3242.67	H	-64.09	-30.00	-34.09
	3242.67	V	-62.02	-30.00	-32.02
	4862.70	V	-43.96	-30.00	-13.96
	4865.30	H	-50.36	-30.00	-20.36
	9727.80	H	-59.33	-30.00	-29.33
	9728.00	V	-59.14	-30.00	-29.14
11	3269.32	H	-64.30	-30.00	-34.30
	3269.34	V	-61.23	-30.00	-31.23
	4902.80	V	-43.13	-30.00	-13.13
	4902.81	H	-52.06	-30.00	-22.06
	9807.94	V	-59.07	-30.00	-29.07
	9808.21	H	-58.66	-30.00	-28.66

NOTE: The emission behavior belongs to narrowband spurious emission.

RECEIVER PARAMETERS

4.5 RECEIVER SPURIOUS RADIATION

4.5.1 LIMITS OF RECEIVER SPURIOUS RADIATION

Narrowband spurious emission limits for receivers

Frequency Range	Limit
30MHz ~ 1GHz	-57dBm
Above 1GHz ~ 12.75GHz	-47dBm

4.5.2 TEST PROCEDURE

Refer to chapter 5.7.6 of ETSI EN 300 328 V1.7.1 (2006-10).

The level of spurious emissions shall be measured as:

Their power in a specified load (conducted spurious emissions) and their effective radiated power when radiated by the cabinet or structure of the equipment (cabinet radiation).

4.5.3 DEVIATION FROM TEST STANDARD

No deviation.

4.5.4 TEST SETUP

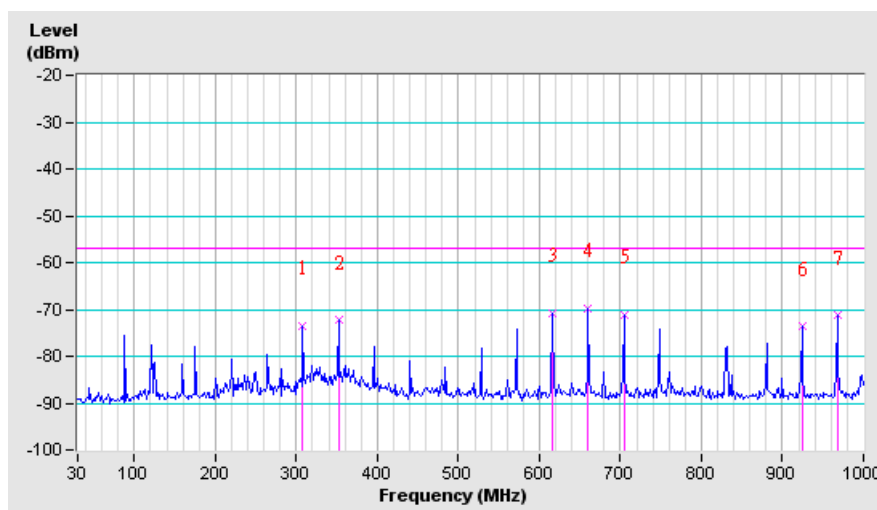
The test setup has been constructed as the normal use condition. The EUT was placed on the turn-table. Controlling software (ART v0 9 b14) has been activated to set the EUT on specific status.

4.5.5 TEST RESULTS ON CONDUCTED SPURIOUS EMISSION

4.5.5.1 Below 1GHz conducted spurious emission

OPERATING FREQUENCY RANGE	2400 ~ 2483.5MHz	ENVIRONMENTAL CONDITIONS	28deg.C, 55%RH
SPURIOUS EMISSION FREQUENCY RANGE	30MHz ~ 1GHz	DUTY CYCLE OF EUT	100%
TESTED BY	Duke Tseng		

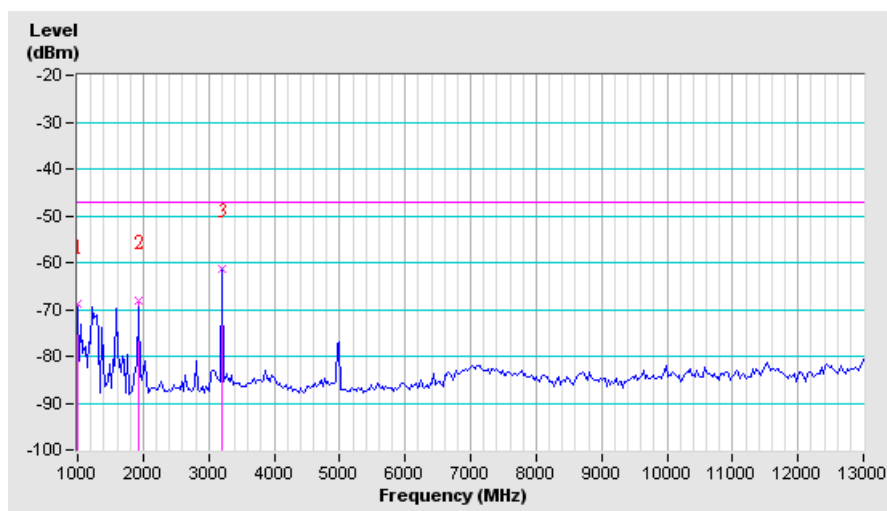
SPURIOUS EMISSION LEVEL			
Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin
308.07	-73.55	-57.00	-16.55
351.72	-72.32	-57.00	-15.32
615.23	-70.71	-57.00	-13.71
660.50	-69.83	-57.00	-12.83
704.15	-71.04	-57.00	-14.04
924.02	-73.72	-57.00	-16.72
967.67	-71.34	-57.00	-14.34



4.5.5.2 Above 1GHz conducted spurious emission

OPERATING FREQUENCY RANGE	2400 ~ 2483.5MHz		
SPURIOUS EMISSION FREQUENCY RANGE	1GHz~12.75GHz	DUTY CYCLE OF EUT	100%
ENVIRONMENTAL CONDITIONS	28deg.C, 55%RH	OPERATING CHANNEL	1
TESTED BY	Duke Tseng		

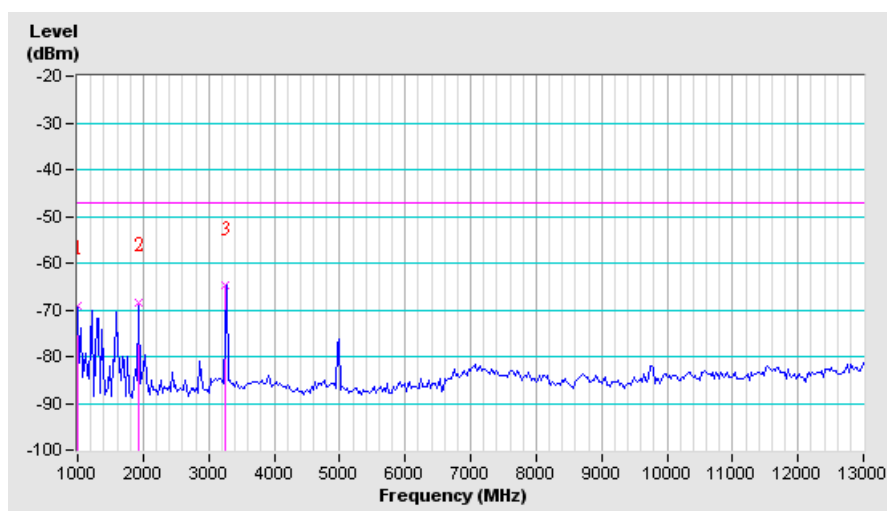
SPURIOUS EMISSION LEVEL			
Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin
1011.99	-68.95	-47.00	-21.95
1936.00	-67.98	-47.00	-20.98
3215.99	-61.30	-47.00	-14.30



OPERATING FREQUENCY RANGE	2400 ~ 2483.5MHz		
SPURIOUS EMISSION FREQUENCY RANGE	1GHz~12.75GHz	DUTY CYCLE OF EUT	100%
ENVIRONMENTAL CONDITIONS	26deg.C, 68%RH	OPERATING CHANNEL	7
TESTED BY	Kent Liu		

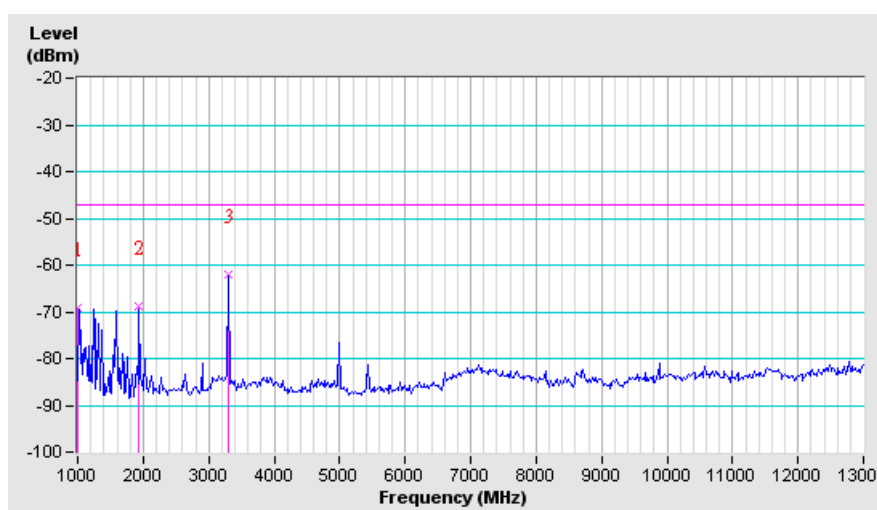
SPURIOUS EMISSION LEVEL				
Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin
1011.99	V	-69.15	-47.00	-22.15
1936.02	V	-68.52	-47.00	-21.52
3255.98	V	-64.88	-47.00	-17.88

NOTE: The emission behavior belongs to narrowband spurious emission.



OPERATING FREQUENCY RANGE	2400 ~ 2483.5MHz		
SPURIOUS EMISSION FREQUENCY RANGE	1GHz~12.75GHz	DUTY CYCLE OF EUT	100%
ENVIRONMENTAL CONDITIONS	26deg.C, 68%RH	OPERATING CHANNEL	13
TESTED BY	Kent Liu		

SPURIOUS EMISSION LEVEL			
Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin
1011.99	-69.12	-47.00	-22.12
1936.00	-68.71	-47.00	-21.71
3295.99	-62.09	-47.00	-15.09



4.5.6 TEST RESULTS ON RADIATED SPURIOUS EMISSION

4.5.6.1 Below 1GHz radiated spurious emission

MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH
OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz	DUTY CYCLE OF EUT	100%
SPURIOUS EMISSION FREQUENCY RANGE	30MHz ~ 1GHz	TESTED BY	Frank Liu

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin
38.75	V	-74.83	-54.81	-20.02
143.80	V	-76.34	-54.81	-21.53
150.40	V	-76.46	-54.81	-21.65
185.05	H	-76.52	-54.81	-21.71
199.90	H	-75.47	-54.81	-20.66
199.90	V	-75.61	-54.81	-20.80
222.45	H	-75.39	-54.81	-20.58
223.00	V	-76.21	-54.81	-21.40
277.45	H	-73.76	-54.81	-18.95
288.45	H	-74.52	-54.81	-19.71
299.45	H	-62.78	-54.81	-7.97
299.45	V	-72.03	-54.81	-17.22
322.40	H	-69.90	-54.81	-15.09
370.00	H	-72.31	-54.81	-17.50
370.00	V	-75.61	-54.81	-20.80
384.00	H	-74.49	-54.81	-19.68
399.40	H	-72.65	-54.81	-17.84
498.80	H	-68.38	-54.81	-13.57
498.80	V	-71.50	-54.81	-16.69
518.40	H	-75.55	-54.81	-20.74
518.40	V	-75.25	-54.81	-20.44
582.80	V	-75.32	-54.81	-20.51
592.60	V	-69.77	-54.81	-14.96
998.60	V	-75.76	-54.81	-20.95

NOTE: The emission behavior belongs to narrowband spurious emission.

4.5.6.2 Above 1GHz radiated spurious emission

OPERATING FREQUENCY RANGE	2400 ~ 2483.5 MHz	MODULATION TYPE	DBPSK
SPURIOUS EMISSION FREQUENCY RANGE	1GHz~12.75GHz	TRANSFER BIT RATE	1Mbps
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	OPERATING CHANNEL	1 , 7 and 13
DUTY CYCLE OF EUT	100%	TESTED BY	Frank Liu

SPURIOUS EMISSION LEVEL					
Channel	Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin (dB)
1	2489.75	H	-59.77	-47.00	-12.77
	2497.67	V	-61.63	-47.00	-14.63
	3216.01	V	-69.61	-47.00	-22.61
	3216.58	H	-71.51	-47.00	-24.51
	4823.33	H	-69.33	-47.00	-22.33
	4824.53	V	-69.75	-47.00	-22.75
	4993.17	V	-58.15	-47.00	-11.15
	4995.92	H	-58.81	-47.00	-11.81
7	2496.83	H	-60.15	-47.00	-13.15
	2497.75	V	-61.59	-47.00	-14.59
	3255.98	H	-71.97	-47.00	-24.97
	3255.98	V	-71.39	-47.00	-24.39
	4884.10	H	-69.38	-47.00	-22.38
	4884.44	V	-71.41	-47.00	-24.41
	4979.92	V	-58.28	-47.00	-11.28
	4993.25	H	-59.38	-47.00	-12.38
13	2490.17	H	-60.78	-47.00	-13.78
	2496.92	V	-61.82	-47.00	-14.82
	3295.98	H	-71.82	-47.00	-24.82
	3296.01	V	-72.00	-47.00	-25.00
	4944.15	H	-70.32	-47.00	-23.32
	4944.35	V	-70.14	-47.00	-23.14
	4979.17	V	-59.41	-47.00	-12.41
	4979.83	H	-59.41	-47.00	-12.41

NOTE: The emission behavior belongs to narrowband spurious emission.

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

Tx and Rx SPURIOUS EMISSION TEST





RF OUTPUT POWER TEST



6 APPENDIX - 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.

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

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