



Ecom Sertech Corp.

Rm. 258, Bldg. 17, NO.195, Sec. 4 Chung Hsing Rd., Chu Tung Chen, Hsinchu, Taiwan 310, R.O.C
TEL:886-3-5918012 FAX: 886-3-5825720

Report No. : ER04-01-005CRF

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TEST REPORT

Product Name : Wireless 11g Access Point

Model Number : MS-6844

Marketing Name : AP54G

Applicant : MICRO-STAR INT'L CO., LTD.

Address : 3F-5 No. 30, Tai-Yuan St, Zhu-Bei City,
Hsinchu Hsien 302, Taiwan

Received Date : Jan. 01, 2004

Tested Date : Jan. 01 ~ Feb. 04, 2004

Notes :

1. This report will be invalid if duplicated or photocopied in part.
2. This report refers only to the specimen(s) submitted to testing, and be invalid as seperately used.
3. This report is invalid without examination stamp and signature of this institute.
4. The tested specimen(s) will be preserved for thirty days from the data issued.





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Test Report Verification

Product Name : Wireless 11g Access Point
Model Number : MS-6844
Applicant : MICRO-STAR INT'L CO., LTD.

Measurement Standard :

- ETSI EN 301 489-17 V1.2.1 (2002)
- ETSI EN 301 489-01 V1.4.1 (2002)
- ETSI EN 300 328 V1.4.1 (2003)

Tested By : K. P. Pang Date : Feb. 02, 2004
(K. P. Pang)
Reviewed By : Roger Sheng Date : Feb. 02, 2004
(Roger Sheng)
Approved By : Chieh-De Tsai Date : Feb. 02, 2004
(Chieh-De Tsai, Manager)

WE HEREBY CERTIFY THAT: The measurements shown in the attachment were made in accordance with the procedures indicated, and the energy emitted by the equipment was found to be within the limits applicable. We assume full responsibility for the accuracy and completeness of these measurements and vouch for the qualifications of all persons taking them.



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1. TEST RESULT CERTIFICATION

Applicant : MICRO-STAR INT'L CO., LTD.
Address : 3F-5 No. 30, Tai-Yuan St, Zhu-Bei City, Hsinchu Hsien 302, Taiwan
EUT Description : 2.4GHz Orthogonal Frequency Division Multiplex and Direct Sequence Spread Spectrum Transceiver for Wireless 11g Access Point
Model Number : MS-6844
Serial Number : N/A
Data Tested : Jan. 01~Feb. 04, 2004

| APPLICABLE STANDARDS | |
|----------------------|-------------|
| STANDARD | TEST RESULT |
| ETSI EN 300 328 | Complied |

The above equipment was tested by E-COM for compliance with the requirements with the requirements set forth in the ETSI EN 300 328. The results of testing in this report apply to the product/system, which was tested only. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.



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2. DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)

MANUFACTURER : MICRO-STAR INT' L CO., LTD.
SAMPLE NAME : Wireless 11g Access Point
MODEL NAME : MS-6844
FREQUENCY CHANNEL : 2457MHz to 2472MHz for France
2412MHz to 2472MHz for other countries in EU
CHANNEL SPACING : 5MHz
CHANNEL NUMBER : 4 for France
13 for other countries in EU
AIR DATA RATE : 11Mbps(802.11b Mode), 54Mbps (802.11g mode)
TYPE OF MODULATION : Direct Sequence Spread Spectrum and
Orthogonal Frequency Division Multiplex
FREQUENCY SELECTION : BY SOFTWARE
ANTENNA TYPE : Two types of Antenna are used.
Dipole Antenna , Antenna Gain : 1dBi.
Patch Antenna , Antenna Gain : 1dBi.
POWER SOURCE : 12VDC, 2.6W (From Adapter)

Power Adapter :

MANUFACTURER : DVE CORP.
MODEL NUMBER : DV-1250UP
INPUT POWER : 230VAC, 75mA
OUTPUT POWER : 12VDC, 500mA



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3. DESCRIPTION OF TEST MODES

The EUT (Wireless 11g Access Point) has been tested under Operating and standby condition. Software used to control the EUT for staying in continuous transmitting and receiving mode is programmed. Channel 1, 7 and 10,13 with 6Mbps (or 11Mbps) highest data rate are chosen for testing.

4. GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT According to the Specifications, it must comply with the requirements of the following standards:

ETSI EN 300 328 V1.4.1 : 2003 – Electromagnetic compatibility and Radio spectrum Matters (ERM) ; wideband transmission systems; data transmission equipment operating in the 2.4GHz ISM band and using spread spectrum modulation techniques:

Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive.



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5. DESCRIPTION OF TEST SITE

SITE DESCRIPTION : FCC Certificate NO. : 90585
BSMI Certificate NO. : SL2-IN-E-0002
NVLAP Lab code : 200118-0
CNLA Certificate NO. : CNLA-ZL97018
VCCI Certificate NO. : R-1189, C-1250

NAME OF SITE : Ecom Sertech Corp. Hsinchu
(Spin-off from ITRI / ERSO on Apr. 01, 2003)

SITE LOCATION : Rm.258, Bldg.17, NO.195 , Sec. 4, Chung Hsing Rd.,
Chu-Tung Chen. Hsin-Chu, Taiwan 310 R.O.C.



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6. DESCRIPTION OF PERIPHERALS

(1) PC

MANUFACTURER : HP CORP.
MODEL NUMBER : Pavilion t123d
SERIAL NUMBER : TW31720190
FCC : DOC

(2) Notebook PC

MANUFACTURER : DELL CORP.
MODEL NUMBER : PP01L
SERIAL NUMBER : CN-09C748-48155-1AP-6630
FCC : DOC
POWER CORD : Unshielded, Detachable, 1.8m

(3) CABLE

| | Type | Connector | shielded | Length |
|-----|-------------------|----------------|----------|--------|
| (A) | Cat5 twisted-pair | RJ-45, Plastic | NO | 15m |



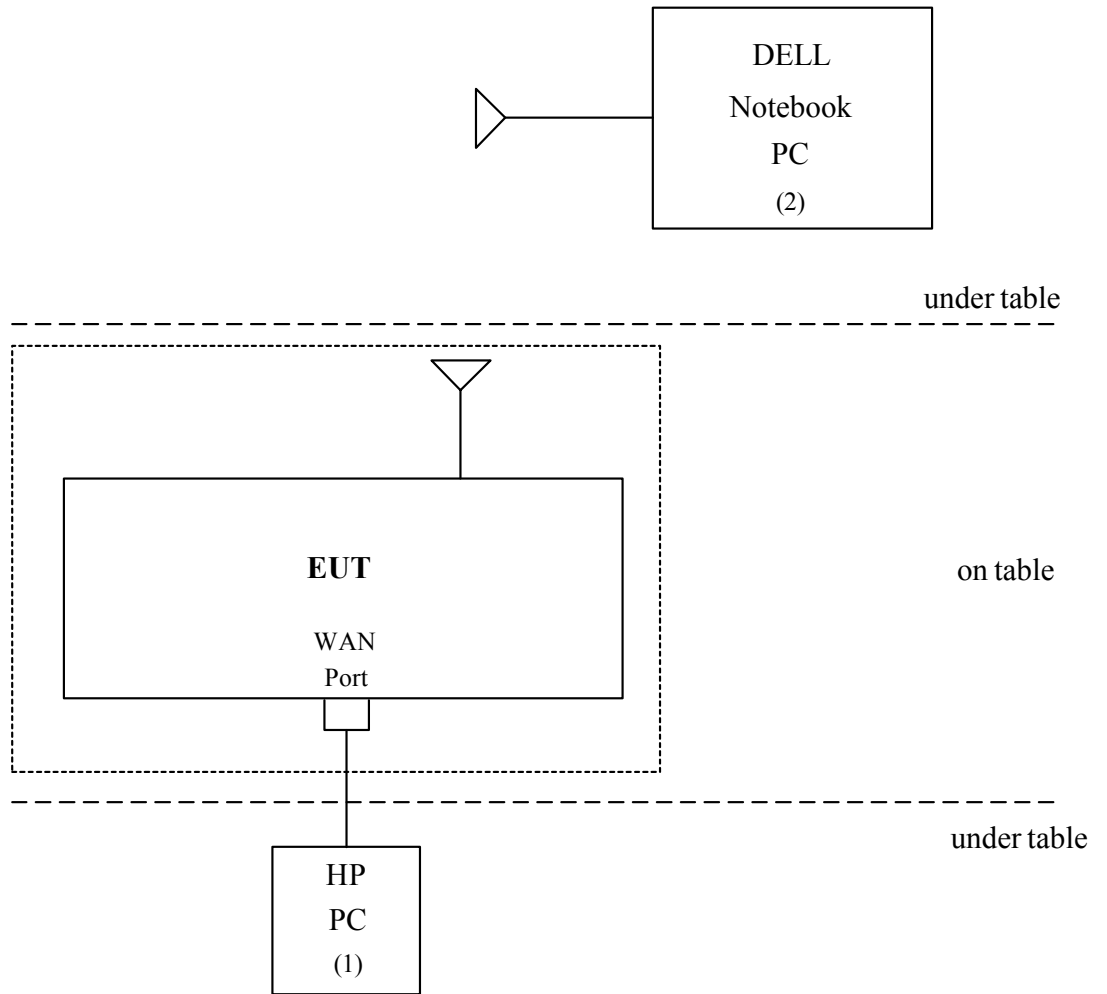
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EUT & Peripherals Setup Diagram



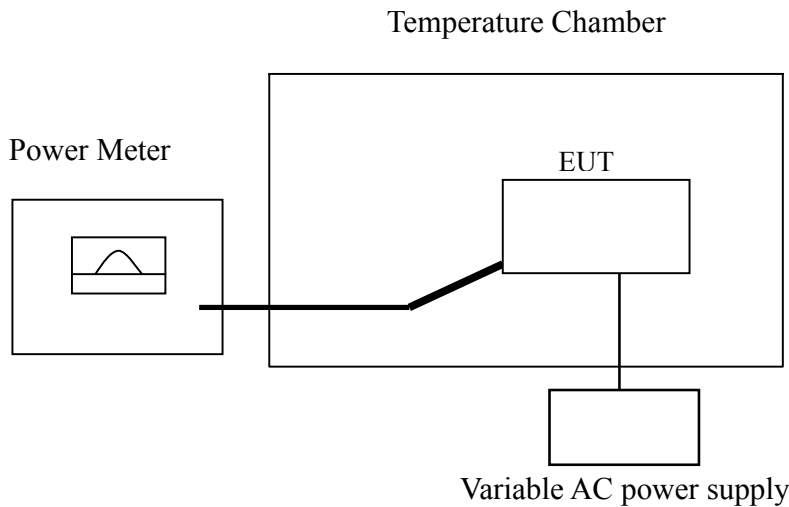
7. ETSI EN 300 328 SUBCLAUSE 4.3.1 EFFECTIVE RADIATED POWER

ETSI EN 300 328 Sub clause 4.3.1.2 : the effective radiated average power shall be equal to or less than 20dBm E.I.R.P, the effective radiated peak power shall be equal or less than 23dBm e.i.r.p.

Measurement Equipment Used:

| Manufacturer or Type | Model No | Serial No | Date of Calibration | Calibration Period | Remark |
|----------------------------|----------|-----------|---------------------|--------------------|--------|
| OPEN SITE | ----- | No.2 | MAY. 09, 2003 | 1 Year | FINAL |
| GIGA-TRONICS POWER METER | 8542 | 1828329 | SEP. 21, 2003 | 1 Year | FINAL |
| TABI TEMP & THUMID CHAMBER | PDL-4F | 5104285 | JUL. 21, 2003 | 1 Year | FINAL |

Test Setup:



Test Procedure:

See the standard for test conductions and please refer to subclause 5.7.2 for the radiated measurement method.



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Test results:

Ambient temperature: 18 °C **Relative humidity:** 65 %

TRANSMITTER E.I.R.P.

CLAUSE 4.3.1.2

Antenna assembly gain: 1dBi, cable loss =1dB

Transmitter power = Power meter reading + Antenna assembly gain + Cable loss

| TEST CONDITIONS | | TRANSMITTER POWER (dBm, e.i.r.p) | | | | | | | |
|--------------------------------|------------------|----------------------------------|-------|------------------|-------|-------------------|-------|-------------------|-------|
| | | (CH1) 2412MHz | | (CH7) 2442MHz | | (CH10) 2457MHz | | (CH13) 2472MHz | |
| | | PK | AVG | PK | AVG | PK | AVG | PK | AVG |
| $T_{nom}(25) ^\circ C$ | $V_{nom}(230) V$ | 17.40 | 15.90 | 19.42 | 17.99 | 19.71 | 18.10 | 18.99 | 17.49 |
| $T_{min}(0) ^\circ C$ | $V_{min}(203) V$ | 17.75 | 16.16 | 19.87 | 18.31 | 20.01 | 18.50 | 19.29 | 17.81 |
| | $V_{max}(253) V$ | 17.71 | 16.18 | 19.86 | 18.32 | 20.08 | 18.51 | 19.29 | 17.80 |
| $T_{max}(50) ^\circ C$ | $V_{min}(203) V$ | 16.26 | 15.71 | 19.34 | 17.82 | 19.49 | 18.00 | 18.84 | 17.23 |
| | $V_{max}(253) V$ | 16.28 | 15.73 | 19.25 | 17.84 | 19.53 | 18.02 | 18.74 | 17.21 |
| Measurement uncertainty | | +1.28dB / -1.30dB | | | | | | | |

Mode : 802.11b Transmitting test.



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Test results:

Ambient temperature: 18 °C Relative humidity: 65 %

TRANSMITTER E.I.R.P.

CLAUSE 4.3.1.2

Antenna assembly gain: 1dBi, cable loss = 1dB

Transmitter power = Power meter reading + Antenna assembly gain + Cable loss

| TEST CONDITIONS | | TRANSMITTER POWER (dBm, e.i.r.p) | | | | | | | |
|-------------------------|-----------------|----------------------------------|-------|------------------|-------|-------------------|-------|-------------------|-------|
| | | (CH1) 2412MHz | | (CH7) 2442MHz | | (CH10) 2457MHz | | (CH13) 2472MHz | |
| | | PK | AVG | PK | AVG | PK | AVG | PK | AVG |
| $T_{nom}(25)^\circ C$ | $V_{nom}(230)V$ | 16.92 | 15.40 | 19.42 | 17.98 | 18.92 | 17.49 | 18.41 | 16.92 |
| $T_{min}(0)^\circ C$ | $V_{min}(203)V$ | 17.18 | 15.67 | 19.76 | 18.26 | 19.21 | 17.74 | 18.72 | 17.15 |
| | $V_{max}(253)V$ | 17.21 | 15.69 | 19.82 | 18.27 | 19.29 | 17.75 | 18.62 | 17.17 |
| $T_{max}(50)^\circ C$ | $V_{min}(203)V$ | 16.78 | 15.21 | 19.31 | 17.81 | 19.06 | 17.57 | 18.19 | 16.76 |
| | $V_{max}(253)V$ | 16.81 | 15.24 | 19.29 | 17.87 | 19.08 | 17.59 | 18.29 | 16.81 |
| Measurement uncertainty | | +1.28dB / -1.30dB | | | | | | | |

Mode : 802.11g Transmitting test.



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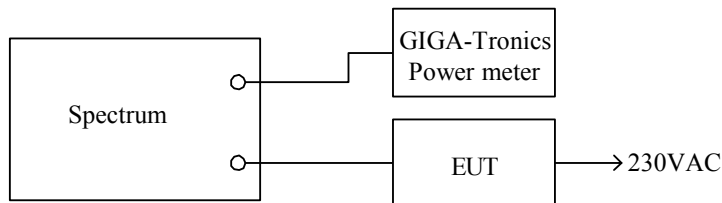
8. ETSI EN 300 328 SUBCLAUSE 4.3.2 MAXIMUM SPECTRAL POWER DENSITY

ETSI EN 300 328 Sub clause 4.3.2.2 limits: the peak power shall be limited to -20dBw (10mW) per MHz e.i.r.p.

Measurement equipment used:

| Manufacturer or Type | Model No | Serial No | Date of Calibration | Calibration Period | Remark |
|--------------------------|----------|-------------|---------------------|--------------------|--------|
| HP SPECTRUM ANALYZER | 8595E | 3829EU01362 | APR. 03, 2003 | 1 Year | FINAL |
| GIGA-TRONICS POWER METER | 8542 | 1828329 | SEP. 21, 2003 | 1 Year | FINAL |

Test Setup:



Test Procedure:

See the standard for test conduction and please refer to clause 5.7.3 for the conducted measurement methods.



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Test results:

Ambient temperature: 18 °C Relative humidity: 65 %

MAXIMUM SPECTRAL POWER DENSITY - DSSS modulation CLAUSE 4.3.2

Antenna assembly gain: 1dBi, cable loss = 1dB

Maximum Spectral Power Density = Spectrum reading + Antenna assembly gain + Cable loss

| TESTS | Maximum Spectral Power Density | | | |
|--|--------------------------------|------------------|-------------------|-------------------|
| | (CH1) 2412MHz | (CH7) 2442MHz | (CH10) 2457MHz | (CH13) 2472MHz |
| Measured power density (dBm/KHz, e.i.r.p) | 7.63/1000 | 9.57/1000 | 9.63/1000 | 9.58/1000 |
| LIMIT (dBm/KHz, e.i.r.p) | 10/1000 | | | |
| PASS/FAIL | PASS | | | |
| Measurement uncertainty | +1.5dB / -1.4dB | | | |

Mode : 802.11b Transmitting test



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Test results:

Ambient temperature: 18 °C Relative humidity: 65 %

MAXIMUM SPECTRAL POWER DENSITY - OFDM modulation CLAUSE 4.3.2

Antenna assembly gain: 1dBi, cable loss = 1dB

Maximum Spectral Power Density = Spectrum reading + Antenna assembly gain + Cable loss

| TESTS | Maximum Spectral Power Density | | | |
|--|--------------------------------|------------------|-------------------|-------------------|
| | (CH1) 2412MHz | (CH7) 2442MHz | (CH10) 2457MHz | (CH13) 2472MHz |
| Measured power density (dBm/KHz, e.i.r.p) | 5.51/1000 | 7.62/1000 | 8.31/1000 | 6.97/1000 |
| LIMIT (dBm/KHz, e.i.r.p) | 10/1000 | | | |
| PASS/FAIL | PASS | | | |
| Measurement uncertainty | +1.5dB / -1.4dB | | | |

Mode : 802.11g Transmitting test

9. ETSI EN 300 328 SUBCLAUSE 4.3.3 FREQUENCY RANGE

ETSI EN 300 328 Subclause 4.3.3.2 limit:

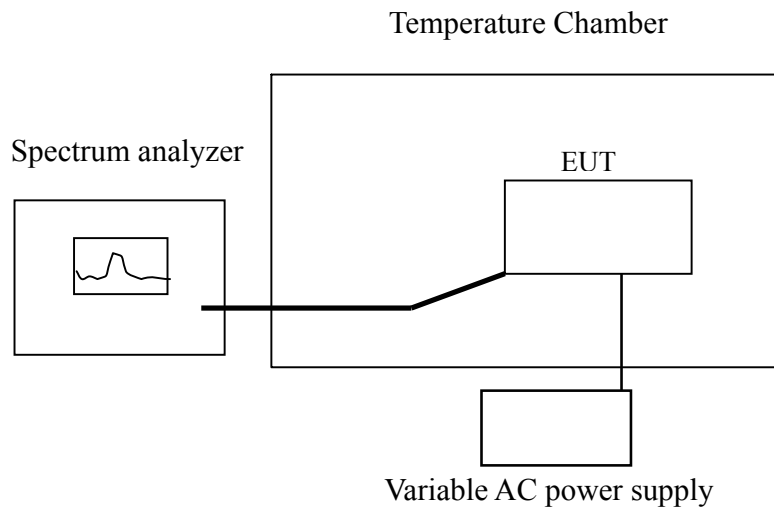
All equipment the frequency range shall lie within the band 2.4GHz to 2.4835GHz
 ($f_L > 2.4\text{GHz}$ and $f_H < 2.4835\text{GHz}$).

For the France, the frequency range only lie within the band from 2.4465GHz to 2.4835GHz.

Measurement equipment used:

| Manufacturer or Type | Model No | Serial No | Date of Calibration | Calibration Period | Remark |
|----------------------|----------|-------------|---------------------|--------------------|--------|
| HP SPECTRUM ANALYZER | 8595E | 3829EU01362 | APR. 03, 2003 | 1 Year | FINAL |

Test Setup:



Test Procedure:

See the standard for test conditions and please refer to subclauses 5.7.4 for the measurement methods.



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Test results: (For other EU countries)

| | | | |
|---------------------------------|------------------|----------------|------------|
| Mode | Channel 1 and 13 | Test By | K. P. Pang |
| Environmental Conditions | 18°C, 65%RH | | |

TRANSMITTER FREQUENCY RANGE - DSSS modulation

CLAUSE 4.3.3.2

| TEST CONDITIONS | | FREQUENCY (MHz) at which -80 dBm/Hz occurs | |
|--|-------------------|---|---------------------|
| | | lowest | Highest |
| $T_{nom} (25)^{\circ}C$ | $V_{nom} (230) V$ | 2403.00 | 2481.50 |
| $T_{min} (0)^{\circ}C$ | $V_{min} (207) V$ | 2403.00 | 2481.50 |
| | $V_{max} (253) V$ | 2403.00 | 2481.50 |
| $T_{max} (50)^{\circ}C$ | $V_{min} (207) V$ | 2403.00 | 2481.38 |
| | $V_{max} (253) V$ | 2403.00 | 2481.38 |
| Measured frequencies (lowest and highest) | | $f_L = 2403.00$ MHz | $f_H = 2481.50$ MHz |
| Measurement uncertainty | | +/- 120kHz | |

Mode : 802.11b Transmitting test



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Test results: (For France)

| | | | |
|---------------------------------|-------------------|----------------|------------|
| Mode | Channel 10 and 13 | Test By | K. P. Pang |
| Environmental Conditions | 18°C, 65%RH | | |

TRANSMITTER FREQUENCY RANGE - DSSS modulation

CLAUSE 4.3.3.2

| TEST CONDITIONS | | FREQUENCY (MHz) at which -80 dBm/Hz occurs | |
|--|--------------------------------|---|------------------------------------|
| | | lowest | Highest |
| T_{nom} (25)°C | V_{nom}(230)V | 2447.75 | 2481.50 |
| T_{min} (0)°C | V_{min}(207)V | 2447.88 | 2481.50 |
| | V_{max}(253)V | 2447.88 | 2481.50 |
| T_{max} (50)°C | V_{min}(207)V | 2447.75 | 2481.50 |
| | V_{max}(253)V | 2447.88 | 2481.50 |
| Measured frequencies (lowest and highest) | | f_L = 2447.75 MHz | f_H = 2481.50 MHz |
| Measurement uncertainty | | +/- 120kHz | |

Mode : wireless 802.11b Transmitting test

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Test results: (For other EU countries)

| | | | |
|---------------------------------|------------------|----------------|------------|
| Mode | Channel 1 and 13 | Test By | K. P. Pang |
| Environmental Conditions | 18°C, 65%RH | | |

TRANSMITTER FREQUENCY RANGE - OFDM modulation**CLAUSE 4.3.3.2**

| TEST CONDITIONS | | FREQUENCY (MHz) at which -80 dBm/Hz occurs | |
|--|--------------------------------|---|------------------------------------|
| | | lowest | Highest |
| T_{nom} (25)⁰C | V_{nom}(230)V | 2402.75 | 2482.13 |
| T_{min} (0)⁰C | V_{min}(207)V | 2402.63 | 2482.50 |
| | V_{max}(253)V | 2402.63 | 2482.50 |
| T_{max} (50)⁰C | V_{min}(207)V | 2402.63 | 2481.75 |
| | V_{max}(253)V | 2402.63 | 2482.00 |
| Measured frequencies (lowest and highest) | | f_L = 2402.63 MHz | f_H = 2482.50 MHz |
| Measurement uncertainty | | +/- 120kHz | |

Mode : 802.11g Transmitting test

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| | | | |
|---------------------------------|-------------------|----------------|------------|
| Mode | Channel 10 and 13 | Test By | K. P. Pang |
| Environmental Conditions | 18°C, 65%RH | | |

TRANSMITTER FREQUENCY RANGE - OFDM modulation**CLAUSE 4.3.3.2**

| TEST CONDITIONS | | FREQUENCY (MHz) at which -80 dBm/Hz occurs | |
|--|--------------------------------|---|------------------------------------|
| | | lowest | Highest |
| T_{nom} (25)⁰C | V_{nom}(230)V | 2446.63 | 2482.13 |
| T_{min} (0)⁰C | V_{min}(207)V | 2446.75 | 2482.50 |
| | V_{max}(253)V | 2446.75 | 2482.50 |
| T_{max} (50)⁰C | V_{min}(207)V | 2446.50 | 2481.75 |
| | V_{max}(253)V | 2446.75 | 2482.00 |
| Measured frequencies (lowest and highest) | | f_L = 2446.50 MHz | f_H = 2482.50 MHz |
| Measurement uncertainty | | +/- 120kHz | |

Mode : 802.11g Transmitting test



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10. ETSI EN 300 328 SUBCLAUSE 4.3.4 TRANSMITTER SPURIOUS EMISSIONS

ETSI EN 300 328 Subclause 4.3.4.2 limits:

The spurious emissions of the transmitter shall not exceed the values in tables 2 and 3 in the indicated bands.

Table 2: Transmitter limits for Narrowband Spurious emissions

| Frequency Range | Limit when operating | Limit when in standby |
|---|----------------------|-----------------------|
| 30MHz to 1 GHz | -36 dBm | -57 dBm |
| above 1 GHz to 12.75 GHz | -30 dBm | -47 dBm |
| 1.8 GHz to 1.9 GHz 5.15 GHz to 5.3 GHz | -47 dBm | -47 dBm |

Table 3: Transmitter limits for Wideband Spurious emissions

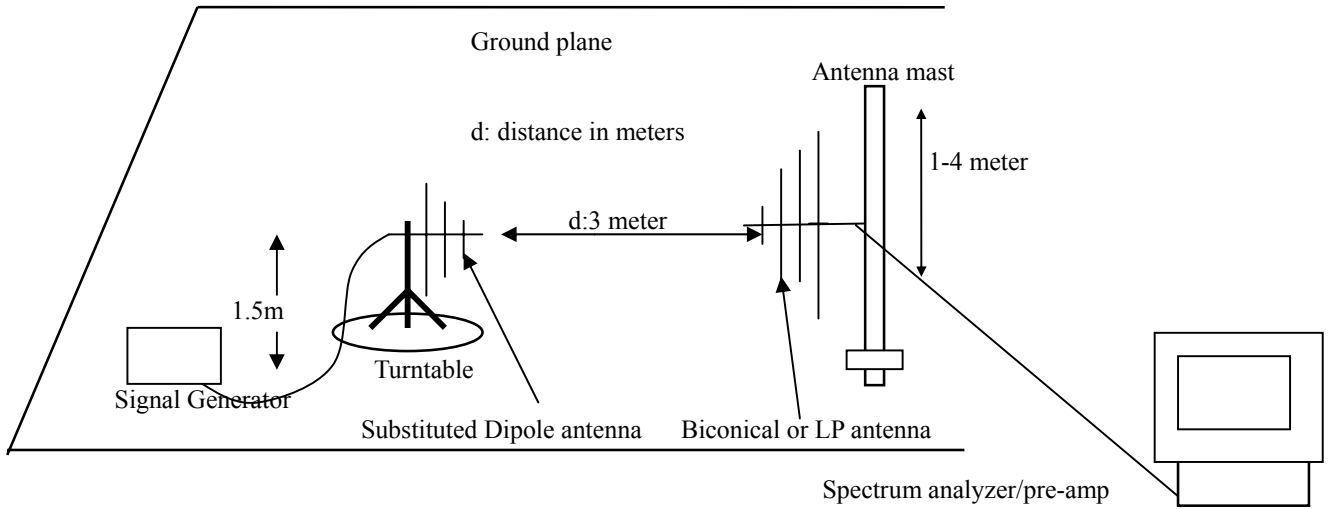
| Frequency Range | Limit when operating | Limit when in standby |
|---|----------------------|-----------------------|
| 30MHz to 1 GHz | -86 dBm/Hz | -107 dBm/Hz |
| above 1 GHz to 12.75 GHz | -80 dBm/Hz | -97 dBm/Hz |
| 1.8 GHz to 1.9 GHz 5.15 GHz to 5.3 GHz | -97 dBm/Hz | -97 dBm/Hz |

Measurement Equipment Used:

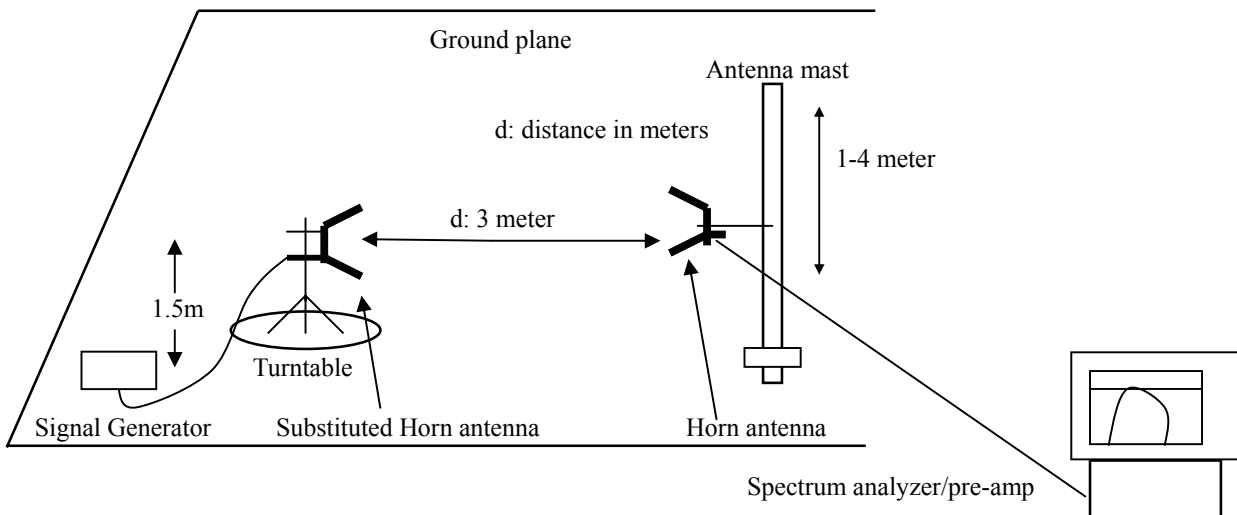
| Manufacturer or Type | Model No | Serial No | Date of Calibration | Calibration Period | Remark |
|-----------------------------------|-------------|------------|---------------------|--------------------|--------|
| CHASE BI-LOG ANTENNA | CBL6112B | 2421 | MAY 07, 2003 | 1 Year | FINAL |
| ROHDE & SCHWARZ SPECTRUM ANALYZER | FSEK30 | 835253/002 | JUN. 17, 2003 | 1 Year | FINAL |
| OPEN SITE | ----- | No.2 | MAY. 09, 2003 | 1 Year | FINAL |
| N TYPE COAXIAL CABLE | CHA9525 | 4 | JUL. 13, 2003 | 1 Year | FINAL |
| Horn Antenna | AH-118 | 10089 | FEB. 25, 2003 | 1 Year | FINAL |
| HP Pre-amplifier | 8449B | 3008A01471 | NOV. 07, 2003 | 1 Year | FINAL |
| High pass filter | 84300/80038 | 011 | cal. on use | 1 Year | FINAL |
| Horn Antenna | AH-840 | 03077 | FEB. 25, 2003 | 1 Year | FINAL |

Test Setup:

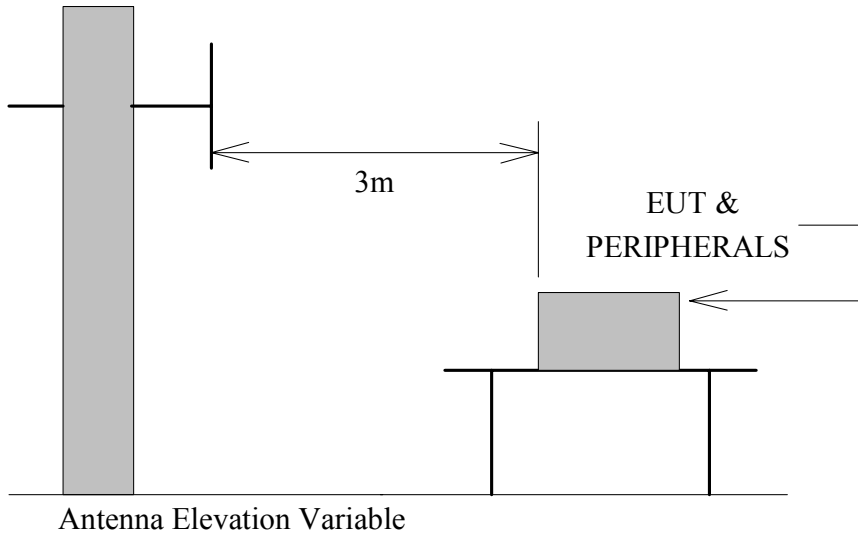
Substitution Measurement setup below 1GHz



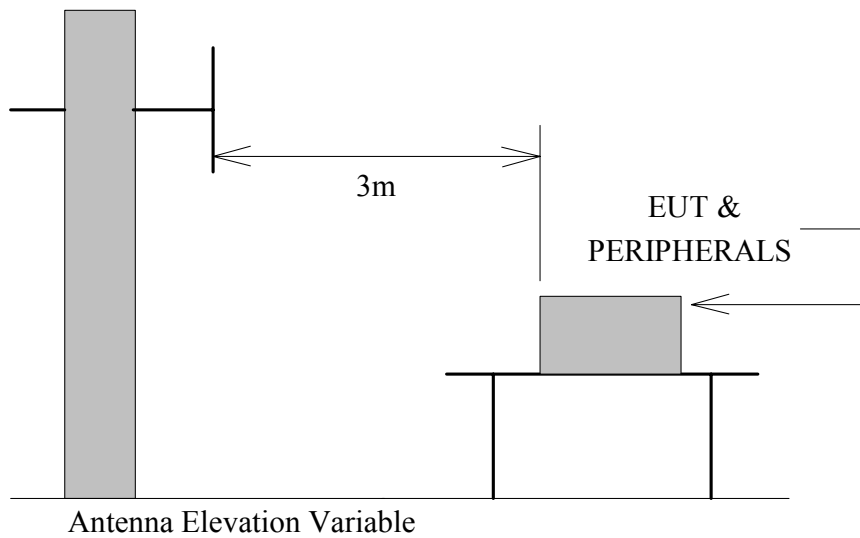
Substitution Measurement setup above 1GHz



Radiated Emission Measurement below 1GHz



Radiated Emission Measurement above 1GHz



Test Procedure:

See the standard for test conditions and please refer to subclause 5.7.5 for the radiated measurement methods.

Uncertainty :

The measurement uncertainty of the test is $\pm 2.72\text{dB}$



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Test results:

Ambient temperature: 18.1 °C Relative humidity: 57 %

Transmitter Spurious Emissions (Radiated)

CLAUSE 4.3.4.2

| | | | |
|---------------------------------|---------------|----------------|------------|
| Frequency Range | 30MHz~1GHz | Mode | CH1 |
| Environmental Conditions | 16.1°C, 76%RH | Test By | K. P. Pang |

| Frequency (MHz) | Antenna Polarization | Level (dBm) | Limit (dBm) | Margin |
|--------------------|-------------------------|----------------|----------------|--------|
| 30.00 | H | * | -36 | * |
| 200.00 | H | -74.95 | -36 | -38.95 |
| 320.00 | H | -70.66 | -36 | -34.66 |
| 400.00 | H | -69.44 | -36 | -33.44 |
| 440.00 | H | -69.97 | -36 | -33.97 |
| 520.00 | H | -62.73 | -36 | -26.73 |
| 600.00 | H | -65.08 | -36 | -29.08 |
| 920.00 | H | -63.74 | -36 | -27.74 |
| 1000.00 | H | * | -36 | * |

- Note: 1. The emission behavior belongs to narrowband spurious emission.
2. According to technical experiences, all spurious emissions at channel 1,7,10 and 13 are almost the same below 1GHz, so that the channel 1 was chosen as representative for the test.
3. Mode : 802.11b Transmitting test.



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Transmitter Spurious Emissions (Radiated) CLAUSE 4.3.4.2

| | | | |
|---------------------------------|---------------|----------------|------------|
| Frequency Range | 30MHz~1GHz | Mode | CH1 |
| Environmental Conditions | 16.1°C, 76%RH | Test By | K. P. Pang |

| Frequency (MHz) | Antenna Polarization | Level (dBm) | Limit (dBm) | Margin |
|--------------------|-------------------------|----------------|----------------|--------|
| 30.00 | V | * | -36 | * |
| 200.00 | V | -72.75 | -36 | -36.75 |
| 320.00 | V | -69.96 | -36 | -33.96 |
| 400.00 | V | -72.34 | -36 | -36.34 |
| 440.00 | V | -70.07 | -36 | -34.07 |
| 520.00 | V | -65.63 | -36 | -29.63 |
| 600.00 | V | -66.38 | -36 | -30.38 |
| 920.00 | V | -65.04 | -36 | -29.04 |
| 1000.00 | V | * | -36 | * |

- Note:
1. The emission behavior belongs to narrowband spurious emission.
 2. According to technical experiences, all spurious emissions at channel 1,7,10 and 13 are almost the same below 1GHz, so that the channel 1 was chosen as representative for the test.
 3. Mode : 802.11b Transmitting test.



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Ambient temperature: 18.1 °C Relative humidity: 57 %

Transmitter Spurious Emissions (Radiated)

CLAUSE 4.3.4.2

| | | | |
|---------------------------------|---------------|----------------|------------|
| Frequency Range | 30MHz~1GHz | Mode | CH1 |
| Environmental Conditions | 16.1°C, 76%RH | Test By | K. P. Pang |

| Frequency (MHz) | Antenna Polarization | Level (dBm) | Limit (dBm) | Margin |
|--------------------|-------------------------|----------------|----------------|--------|
| 30.00 | H | * | -36 | * |
| 200.00 | H | -74.85 | -36 | -38.85 |
| 320.00 | H | -70.36 | -36 | -34.36 |
| 400.00 | H | -69.24 | -36 | -33.24 |
| 440.00 | H | -69.87 | -36 | -33.87 |
| 520.00 | H | -62.63 | -36 | -26.63 |
| 600.00 | H | -64.88 | -36 | -28.88 |
| 920.00 | H | -63.44 | -36 | -27.44 |
| 1000.00 | H | * | -36 | * |

- Note:
1. The emission behavior belongs to narrowband spurious emission.
 2. According to technical experiences, all spurious emissions at channel 1,7,10 and 13 are almost the same below 1GHz, so that the channel 1 was chosen as representative for the test.
 3. Mode : 802.11g Transmitting test.



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Transmitter Spurious Emissions (Radiated) CLAUSE 4.3.4.2

| | | | |
|---------------------------------|---------------|----------------|------------|
| Frequency Range | 30MHz~1GHz | Mode | CH1 |
| Environmental Conditions | 16.1°C, 76%RH | Test By | K. P. Pang |

| Frequency (MHz) | Antenna Polarization | Level (dBm) | Limit (dBm) | Margin |
|--------------------|-------------------------|----------------|----------------|--------|
| 30.00 | V | * | -36 | * |
| 200.00 | V | -72.35 | -36 | -36.35 |
| 320.00 | V | -69.36 | -36 | -33.36 |
| 400.00 | V | -71.74 | -36 | -35.74 |
| 440.00 | V | -69.67 | -36 | -33.67 |
| 520.00 | V | -65.33 | -36 | -29.33 |
| 600.00 | V | -66.18 | -36 | -30.18 |
| 920.00 | V | -64.84 | -36 | -28.84 |
| 1000.00 | V | * | -36 | * |

- Note: 1. The emission behavior belongs to narrowband spurious emission.
2. According to technical experiences, all spurious emissions at channel 1,7,10 and 13 are almost the same below 1GHz, so that the channel 1 was chosen as representative for the test.
3. Mode : 802.11g Transmitting test.



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Transmitter Spurious Emissions (Radiated) **CLAUSE 4.3.4.2**

| | | | |
|---------------------------------|----------------|----------------|-------------|
| Frequency Range | ABOVE 1GHz | Mode | CH1,7,10,13 |
| Environmental Conditions | 19.4°C , 69%RH | Test By | K. P. Pang |

| Frequency (MHz) | Antenna Polarization | Level (dBm) | Limit (dBm) | Margin | Channel |
|--------------------|-------------------------|----------------|----------------|--------|---------|
| 1000.00 | H | --- | -30 | --- | CH1 |
| 2059.39 | H | -65.95 | -30 | -35.95 | CH1 |
| 4824.02 | H | -52.18 | -30 | -22.18 | CH1 |
| 7236.04 | H | -65.73 | -30 | -35.73 | CH1 |
| 9647.92 | H | -57.16 | -30 | -27.16 | CH1 |
| 12750.00 | H | --- | -30 | --- | CH1 |
| 1000.00 | H | --- | -30 | --- | CH7 |
| 2134.58 | H | -66.17 | -30 | -36.17 | CH7 |
| 4884.03 | H | -50.24 | -30 | -20.24 | CH7 |
| 7326.04 | H | -65.69 | -30 | -35.69 | CH7 |
| 9767.96 | H | -54.40 | -30 | -24.40 | CH7 |
| 12750.00 | H | --- | -30 | --- | CH7 |
| 1000.00 | H | --- | -30 | --- | CH10 |
| 2171.77 | H | -65.51 | -30 | -35.51 | CH10 |
| 4913.99 | H | -48.41 | -30 | -18.41 | CH10 |
| 7371.01 | H | -66.57 | -30 | -36.57 | CH10 |
| 9828.00 | H | -54.02 | -30 | -24.02 | CH10 |
| 12750.00 | H | --- | -30 | --- | CH10 |
| 1000.00 | H | --- | -30 | --- | CH13 |
| 2207.98 | H | -64.85 | -30 | -34.85 | CH13 |
| 4944.03 | H | -50.31 | -30 | -20.31 | CH13 |
| 7415.92 | H | -65.79 | -30 | -35.79 | CH13 |
| 9887.98 | H | -53.94 | -30 | -23.94 | CH13 |
| 12750.00 | H | --- | -30 | --- | CH13 |

- Note: 1. The emission behavior belongs to narrowband spurious emission.
 2. The frequency is searched to tenth harmonic.
 3. If the emission level is too low to be measured, it is not reported,
 "-----" means that the emissions level is too low to be measured.
 4. Mode : wireless 802.11b Transmitting test.



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Transmitter Spurious Emissions (Radiated) CLAUSE 4.3.4.2

| | | | |
|---------------------------------|---------------|----------------|-------------|
| Frequency Range | ABOVE 1GHz | Mode | CH1,7,10,13 |
| Environmental Conditions | 19.4°C, 69%RH | Test By | K. P. Pang |

| Frequency (MHz) | Antenna Polarization | Level (dBm) | Limit (dBm) | Margin | Channel |
|--------------------|-------------------------|----------------|----------------|--------|---------|
| 1000.00 | V | --- | -30 | --- | CH1 |
| 2059.14 | V | -42.16 | -30 | -12.16 | CH1 |
| 4824.07 | V | -49.01 | -30 | -19.01 | CH1 |
| 7235.88 | V | -66.50 | -30 | -36.50 | CH1 |
| 9647.85 | V | -55.18 | -30 | -25.18 | CH1 |
| 12750.00 | V | --- | -30 | --- | CH1 |
| 1000.00 | V | --- | -30 | --- | CH7 |
| 2135.26 | V | -42.53 | -30 | -12.53 | CH7 |
| 4883.95 | V | -46.44 | -30 | -16.44 | CH7 |
| 7326.12 | V | -66.06 | -30 | -36.06 | CH7 |
| 9767.95 | V | -55.31 | -30 | -25.31 | CH7 |
| 12750.00 | V | --- | -30 | --- | CH7 |
| 1000.00 | V | --- | -30 | --- | CH10 |
| 2171.64 | V | -41.59 | -30 | -11.59 | CH10 |
| 4913.95 | V | -42.82 | -30 | -12.82 | CH10 |
| 7371.14 | V | -65.33 | -30 | -35.33 | CH10 |
| 9827.94 | V | -53.95 | -30 | -23.95 | CH10 |
| 12750.00 | V | --- | -30 | --- | CH10 |
| 1000.00 | V | --- | -30 | --- | CH13 |
| 2208.78 | V | -44.12 | -30 | -14.12 | CH13 |
| 4944.02 | V | -45.74 | -30 | -15.74 | CH13 |
| 7415.97 | V | -64.76 | -30 | -34.76 | CH13 |
| 9888.04 | V | -53.16 | -30 | -23.16 | CH13 |
| 12750.00 | V | --- | -30 | --- | CH13 |

- Note:
1. The emission behavior belongs to narrowband spurious emission.
 2. The frequency is searched to tenth harmonic.
 3. If the emission level is too low to be measured, it is not reported, "----" means that the emissions level is too low to be measured.
 4. Mode : wireless 802.11b Transmitting test.



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Transmitter Spurious Emissions (Radiated) CLAUSE 4.3.4.2

| | | | |
|---------------------------------|----------------|----------------|-------------|
| Frequency Range | ABOVE 1GHz | Mode | CH1,7,10,13 |
| Environmental Conditions | 19.7°C , 69%RH | Test By | K. P. Pang |

| Frequency (MHz) | Antenna Polarization | Level (dBm) | Limit (dBm) | Margin | Channel |
|--------------------|-------------------------|----------------|----------------|--------|---------|
| 1000.00 | H | --- | -30 | --- | CH1 |
| 2059.69 | H | -66.37 | -30 | -36.37 | CH1 |
| 4823.95 | H | -54.48 | -30 | -24.48 | CH1 |
| 7235.97 | H | -66.03 | -30 | -36.03 | CH1 |
| 9647.93 | H | -55.12 | -30 | -25.12 | CH1 |
| 12750.00 | H | --- | -30 | --- | CH1 |
| 1000.00 | H | --- | -30 | --- | CH7 |
| 2132.78 | H | -65.79 | -30 | -35.79 | CH7 |
| 4883.95 | H | -54.72 | -30 | -24.72 | CH7 |
| 7326.09 | H | -66.22 | -30 | -36.22 | CH7 |
| 9767.91 | H | -54.17 | -30 | -24.17 | CH7 |
| 12750.00 | H | --- | -30 | --- | CH7 |
| 1000.00 | H | --- | -30 | --- | CH10 |
| 2171.68 | H | -64.70 | -30 | -34.70 | CH10 |
| 4913.95 | H | -53.66 | -30 | -23.66 | CH10 |
| 7371.06 | H | -66.27 | -30 | -36.27 | CH10 |
| 9827.93 | H | -54.34 | -30 | -24.34 | CH10 |
| 12750.00 | H | --- | -30 | --- | CH10 |
| 1000.00 | H | --- | -30 | --- | CH13 |
| 2206.98 | H | -64.94 | -30 | -34.94 | CH13 |
| 4943.97 | H | -53.60 | -30 | -23.60 | CH13 |
| 7415.88 | H | -65.75 | -30 | -35.75 | CH13 |
| 9887.94 | H | -54.36 | -30 | -24.36 | CH13 |
| 12750.00 | H | --- | -30 | --- | CH13 |

- Note: 1. The emission behavior belongs to narrowband spurious emission.
 2. The frequency is searched to tenth harmonic.
 3. If the emission level is too low to be measured, it is not reported,
 "-----" means that the emissions level is too low to be measured.
 4. Mode : wireless 802.11g Transmitting test.



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Transmitter Spurious Emissions (Radiated) CLAUSE 4.3.4.2

| | | | |
|---------------------------------|---------------|----------------|-------------|
| Frequency Range | ABOVE 1GHz | Mode | CH1,7,10,13 |
| Environmental Conditions | 19.9°C, 68%RH | Test By | K. P. Pang |

| Frequency (MHz) | Antenna Polarization | Level (dBm) | Limit (dBm) | Margin | Channel |
|--------------------|-------------------------|----------------|----------------|--------|---------|
| 1000.00 | V | --- | -30 | --- | CH1 |
| 2058.61 | V | -41.23 | -30 | -11.23 | CH1 |
| 4823.98 | V | -52.61 | -30 | -22.61 | CH1 |
| 7236.01 | V | -65.29 | -30 | -35.29 | CH1 |
| 9647.95 | V | -55.83 | -30 | -25.83 | CH1 |
| 12750.00 | V | --- | -30 | --- | CH1 |
| 1000.00 | V | --- | -30 | --- | CH7 |
| 2134.88 | V | -42.59 | -30 | -12.59 | CH7 |
| 4883.95 | V | -50.48 | -30 | -20.48 | CH7 |
| 7326.18 | V | -65.53 | -30 | -35.53 | CH7 |
| 9767.89 | V | -54.76 | -30 | -24.76 | CH7 |
| 12750.00 | V | --- | -30 | --- | CH7 |
| 1000.00 | V | --- | -30 | --- | CH10 |
| 2172.37 | V | -42.44 | -30 | -12.44 | CH10 |
| 4913.95 | V | -48.09 | -30 | -18.09 | CH10 |
| 7371.05 | V | -66.14 | -30 | -36.14 | CH10 |
| 9827.93 | V | -53.30 | -30 | -23.30 | CH10 |
| 12750.00 | V | --- | -30 | --- | CH10 |
| 1000.00 | V | --- | -30 | --- | CH13 |
| 2208.58 | V | -45.48 | -30 | -15.48 | CH13 |
| 4945.19 | V | -51.03 | -30 | -21.03 | CH13 |
| 7415.89 | V | -64.97 | -30 | -34.97 | CH13 |
| 9887.94 | V | -52.92 | -30 | -22.92 | CH13 |
| 12750.00 | V | --- | -30 | --- | CH13 |

- Note: 1. The emission behavior belongs to narrowband spurious emission.
 2. The frequency is searched to tenth harmonic.
 3. If the emission level is too low to be measured, it is not reported,
 "-----" means that the emissions level is too low to be measured.
 4. Mode : wireless 802.11g Transmitting test.



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Stand By Mode CLAUSE 4.3.4.2

| | | | |
|---------------------------------|---------------|----------------|------------|
| Frequency Range | 30MHz~1GHz | Mode | Stand by |
| Environmental Conditions | 16.1°C, 76%RH | Test By | K. P. Pang |

| Frequency (MHz) | Antenna Polarization | Level (dBm) | Limit (dBm) | Margin |
|--------------------|-------------------------|----------------|----------------|--------|
| 30.00 | H | * | -57 | * |
| 200.00 | H | -75.95 | -57 | -18.95 |
| 320.00 | H | -71.26 | -57 | -14.26 |
| 400.00 | H | -70.14 | -57 | -13.14 |
| 440.00 | H | -70.67 | -57 | -13.67 |
| 520.00 | H | -64.03 | -57 | -7.03 |
| 600.00 | H | -66.77 | -57 | -9.77 |
| 920.00 | H | -64.37 | -57 | -7.37 |
| 1000.00 | H | * | -57 | * |

- Note: 1. The emission behavior belongs to narrowband spurious emission.
2. If the emission level is too low to be measured, it is not reported.
3. Mode : 802.11b stand-by mode test.
4. The spurious emission of the EUT in stand-by mode above 1GHz is too low to be measured.
It is not reported.



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Stand By **CLAUSE 4.3.4.2**

| | | | |
|---------------------------------|---------------|----------------|------------|
| Frequency Range | 30MHz~1GHz | Mode | Stand by |
| Environmental Conditions | 16.1°C, 76%RH | Test By | K. P. Pang |

| Frequency (MHz) | Antenna Polarization | Level (dBm) | Limit (dBm) | Margin |
|--------------------|-------------------------|----------------|----------------|--------|
| 30.00 | V | * | -57 | * |
| 200.00 | V | -73.65 | -57 | -16.65 |
| 320.00 | V | -70.16 | -57 | -13.16 |
| 400.00 | V | -73.34 | -57 | -16.34 |
| 440.00 | V | -70.37 | -57 | -13.37 |
| 520.00 | V | -66.93 | -57 | -9.93 |
| 600.00 | V | -68.37 | -57 | -11.37 |
| 920.00 | V | -65.47 | -57 | -8.47 |
| 1000.00 | V | * | -57 | * |

- Note: 1. The emission behavior belongs to narrowband spurious emission.
2. If the emission level is too low to be measured, it is not reported.
3. Mode : 802.11b stand-by mode test.
4. The spurious emission of the EUT in stand-by mode above 1GHz is too low to be measured.
It is not reported.



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11. ETSI EN 300 328 SUBCLAUSE 4.3.5 RECEIVER SPURIOUS EMISSIONS

ETSI EN 300 328 Subclause 4.3.5.2 Limits

The spurious emissions of the receiver shall not exceed the values in table 4 and 5 in the indicated bands.

Table 4: Narrowband spurious emission limits for receivers

| Frequency Range | Limit |
|--------------------------|---------|
| 30MHz to 1 GHz | -57 dBm |
| above 1 GHz to 12.75 GHz | -47 dBm |

Table 5: Wideband spurious emission limits for receivers

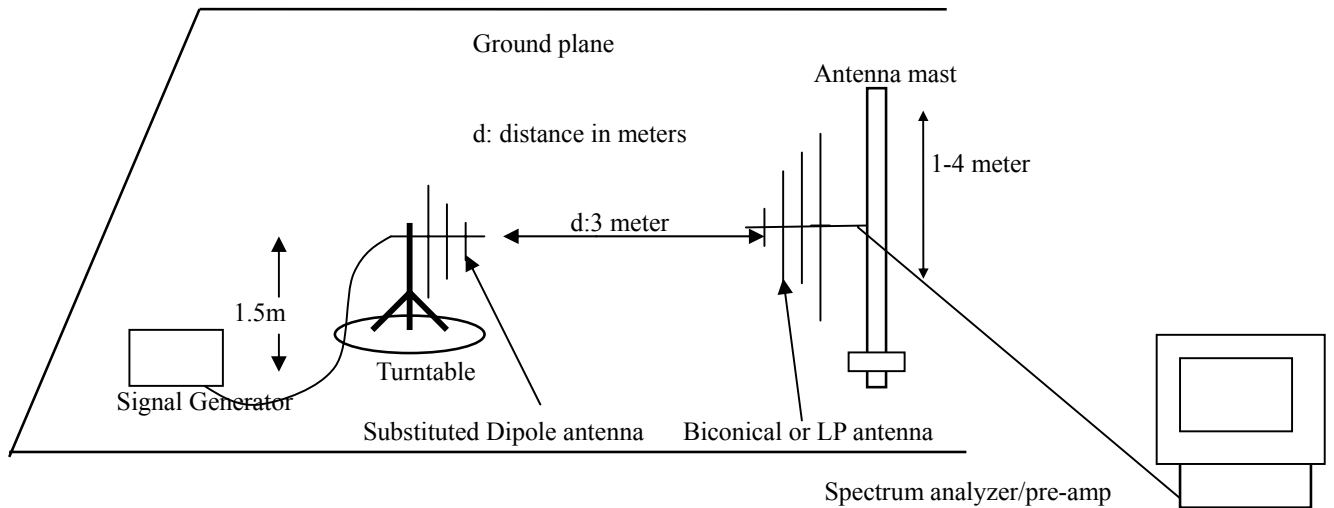
| Frequency Range | Limit |
|--------------------------|-------------|
| 30MHz to 1 GHz | -107 dBm/Hz |
| above 1 GHz to 12.75 GHz | -97 dBm/Hz |

Measurement Equipment Used:

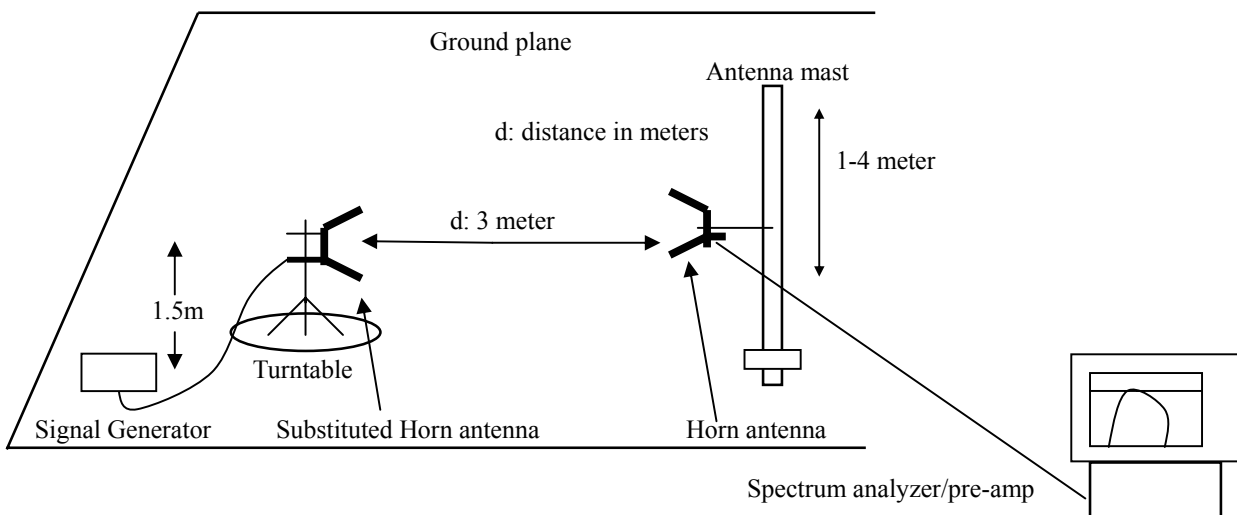
| Manufacturer or Type | Model No | Serial No | Date of Calibration | Calibration Period | Remark |
|-----------------------------------|-------------|------------|---------------------|--------------------|--------|
| CHASE BI-LOG ANTENNA | CBL6112B | 2421 | MAY 07, 2003 | 1 Year | FINAL |
| ROHDE & SCHWARZ SPECTRUM ANALYZER | FSEK30 | 835253/002 | JUN. 17, 2003 | 1 Year | FINAL |
| OPEN SITE | ----- | No.2 | MAY. 09, 2003 | 1 Year | FINAL |
| N TYPE COAXIAL CABLE | CHA9525 | 4 | JUL. 13, 2003 | 1 Year | FINAL |
| Horn Antenna | AH-118 | 10089 | FEB. 25, 2003 | 1 Year | FINAL |
| HP Pre-amplifier | 8449B | 3008A01471 | NOV. 07, 2003 | 1 Year | FINAL |
| High pass filter | 84300/80038 | 011 | cal. on use | 1 Year | FINAL |
| Horn Antenna | AH-840 | 03077 | FEB. 25, 2003 | 1 Year | FINAL |

Test Setup:

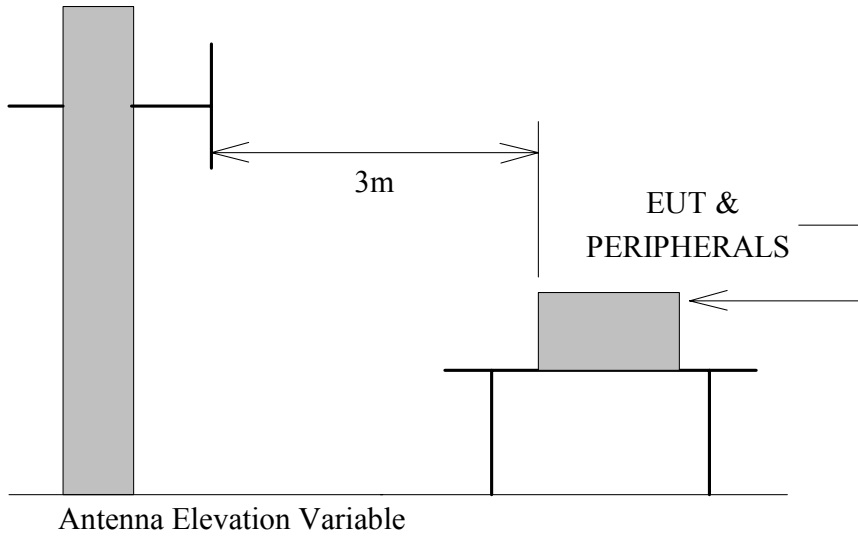
Substitution Measurement setup below 1GHz



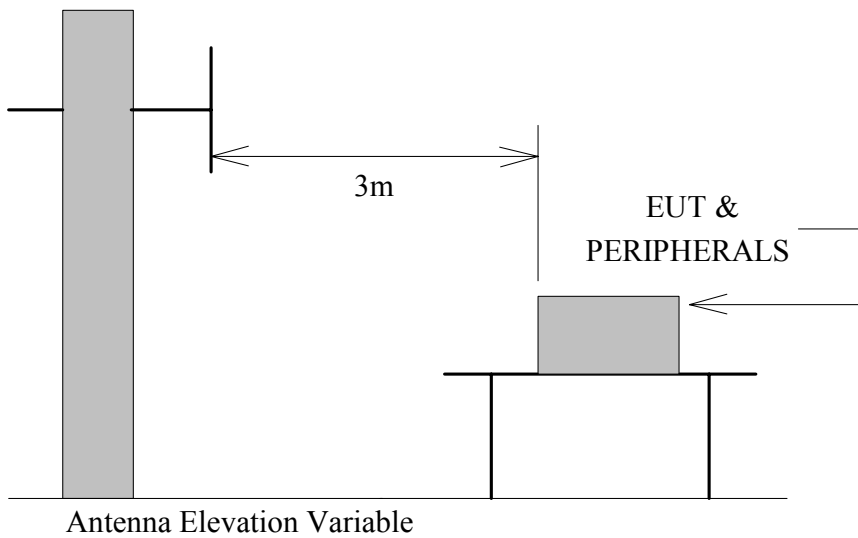
Substitution Measurement setup above 1GHz



Radiated Emission Measurement below 1GHz



Radiated Emission Measurement above 1GHz





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Test Procedure:

See the standard for the test conductions and please refer to subclause 5.7.6 for the radiated measurement methods.

EUT was placed on an 1.5m outdoor wooden table. The search antenna is placed at 3m distance from the EUT and search antenna height is from 1-4m. with the transmitter operating at continuously mode, the turntable was slowly rotated to locate the direction of maximum emission. Once maximum direction is determined, the search antenna was raised and lowered in both vertical and horizontal polarizations.

The EUT was removed from the turntable and replaced with a Horn antenna connected to a calibrated RF signal generator. The RF generator was set to a measured emission frequency and the search antenna was raised and lowered to produced a maximum received reading . The generator output was increased to match the radiated emission reading measured previously and the result expressed in dB or ERP.

Uncertainty :

The measurement uncertainty of the test is $\pm 2.72\text{dB}$



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Test results:

Receiver Spurious Emissions (Radiated)

CLAUSE 4.3.5.2

| | | | |
|---------------------------------|---------------|----------------|-------------|
| Frequency Range | BELOW 1GHz | Mode | CH1,7,10,13 |
| Environmental Conditions | 16.1°C, 76%RH | Test By | K. P. Pang |

| Frequency (MHz) | Antenna Polarization | Level (dBm) | Limit (dBm) | Margin |
|--------------------|-------------------------|----------------|----------------|--------|
| 30.00 | H | * | -57 | * |
| 200.00 | H | -75.15 | -57 | -18.15 |
| 320.00 | H | -70.86 | -57 | -13.86 |
| 400.00 | H | -69.64 | -57 | -12.64 |
| 440.00 | H | -69.97 | -57 | -12.97 |
| 520.00 | H | -63.63 | -57 | -6.63 |
| 600.00 | H | -66.57 | -57 | -9.57 |
| 920.00 | H | -64.87 | -57 | -7.87 |
| 1000.00 | H | * | -57 | * |

Note: 1. The emission behavior belongs to narrowband spurious emission.

2. According to technical experiences, all spurious emissions at channel 1,7,10 and 13 are almost the same below 1GHz, so that the channel 1 was chosen as representative for the test.

3. Mode : 802.11b Transmitting test.



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Receiver Spurious Emissions (Radiated) CLAUSE 4.3.5.2

| | | | |
|---------------------------------|---------------|----------------|-------------|
| Frequency Range | BELOW 1GHz | Mode | CH1,7,10,13 |
| Environmental Conditions | 16.1°C, 76%RH | Test By | K. P. Pang |

| Frequency (MHz) | Antenna Polarization | Level (dBm) | Limit (dBm) | Margin |
|--------------------|-------------------------|----------------|----------------|--------|
| 30.00 | V | * | -57 | * |
| 200.00 | V | -73.15 | -57 | -16.15 |
| 320.00 | V | -70.26 | -57 | -13.26 |
| 400.00 | V | -72.44 | -57 | -15.44 |
| 440.00 | V | -70.07 | -57 | -13.07 |
| 520.00 | V | -66.33 | -57 | -9.33 |
| 600.00 | V | -68.27 | -57 | -11.27 |
| 920.00 | V | -65.47 | -57 | -8.47 |
| 1000.00 | V | * | -57 | * |

- Note: 1. The emission behavior belongs to narrowband spurious emission.
2. According to technical experiences, all spurious emissions at channel 1,7,10 and 13 are almost the same below 1GHz, so that the channel 1 was chosen as representative for the test.
3. Mode : 802.11b Transmitting test.



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Receiver Spurious Emissions (Radiated)

CLAUSE 4.3.5.2

| | | | |
|---------------------------------|---------------|----------------|-------------|
| Frequency Range | BELOW 1GHz | Mode | CH1,7,10,13 |
| Environmental Conditions | 16.1°C, 76%RH | Test By | K. P. Pang |

| Frequency (MHz) | Antenna Polarization | Level (dBm) | Limit (dBm) | Margin |
|--------------------|-------------------------|----------------|----------------|--------|
| 30.00 | H | * | -57 | * |
| 200.00 | H | -75.05 | -57 | -18.05 |
| 320.00 | H | -70.56 | -57 | -13.56 |
| 400.00 | H | -69.44 | -57 | -12.44 |
| 440.00 | H | -70.07 | -57 | -13.07 |
| 520.00 | H | -62.83 | -57 | -5.83 |
| 600.00 | H | -66.37 | -57 | -9.37 |
| 920.00 | H | -63.77 | -57 | -6.77 |
| 1000.00 | H | * | -57 | * |

- Note: 1. The emission behavior belongs to narrowband spurious emission.
2. According to technical experiences, all spurious emissions at channel 1,7,10 and 13 are almost the same below 1GHz, so that the channel 1 was chosen as representative for the test.
3. Mode : 802.11g Transmitting test.



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Receiver Spurious Emissions (Radiated) CLAUSE 4.3.5.2

| | | | |
|---------------------------------|---------------|----------------|-------------|
| Frequency Range | BELOW 1GHz | Mode | CH1,7,10,13 |
| Environmental Conditions | 16.1°C, 76%RH | Test By | K. P. Pang |

| Frequency (MHz) | Antenna Polarization | Level (dBm) | Limit (dBm) | Margin |
|--------------------|-------------------------|----------------|----------------|--------|
| 30.00 | V | * | -57 | * |
| 200.00 | V | -72.55 | -57 | -15.55 |
| 320.00 | V | -69.86 | -57 | -12.86 |
| 400.00 | V | -72.14 | -57 | -15.14 |
| 440.00 | V | -69.77 | -57 | -12.77 |
| 520.00 | V | -65.93 | -57 | -8.93 |
| 600.00 | V | -67.57 | -57 | -10.57 |
| 920.00 | V | -65.07 | -57 | -8.07 |
| 1000.00 | V | * | -57 | * |

- Note: 1. The emission behavior belongs to narrowband spurious emission.
2. According to technical experiences, all spurious emissions at channel 1,7,10 and 13 are almost the same below 1GHz, so that the channel 1 was chosen as representative for the test.
3. Mode : 802.11g Transmitting test.



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Receiver Spurious Emissions (Radiated) CLAUSE 4.3.5.2

| | | | |
|---------------------------------|---------------|----------------|-------------|
| Frequency Range | ABOVE 1GHz | Mode | CH1,7,10,13 |
| Environmental Conditions | 14.6°C, 74%RH | Test By | K. P. Pang |

| Frequency (MHz) | Antenna Polarization | Level (dBm) | Limit (dBm) | Margin | Channel |
|--------------------|-------------------------|----------------|----------------|--------|---------|
| 1000.00 | H | --- | -47 | --- | CH1 |
| 1239.99 | H | -59.30 | -47 | -12.30 | CH1 |
| 4823.98 | H | -52.67 | -47 | -5.67 | CH1 |
| 7235.99 | H | -66.73 | -47 | -19.73 | CH1 |
| 9647.95 | H | -54.90 | -47 | -7.90 | CH1 |
| 12750.00 | H | --- | -47 | --- | CH1 |
| 1000.00 | H | --- | -47 | --- | CH7 |
| 1239.99 | H | -59.28 | -47 | -12.28 | CH7 |
| 4883.97 | H | -53.33 | -47 | -6.33 | CH7 |
| 7326.02 | H | -66.92 | -47 | -19.92 | CH7 |
| 9767.95 | H | -54.48 | -47 | -7.48 | CH7 |
| 12750.00 | H | --- | -47 | --- | CH7 |
| 1000.00 | H | --- | -47 | --- | CH10 |
| 1239.99 | H | -59.27 | -47 | -12.27 | CH10 |
| 4913.97 | H | -53.75 | -47 | -6.75 | CH10 |
| 7371.00 | H | -66.45 | -47 | -19.45 | CH10 |
| 9827.96 | H | -54.37 | -47 | -7.37 | CH10 |
| 12750.00 | H | --- | -47 | --- | CH10 |
| 1000.00 | H | --- | -47 | --- | CH13 |
| 1239.99 | H | -59.33 | -47 | -12.33 | CH13 |
| 4943.97 | H | -53.04 | -47 | -6.04 | CH13 |
| 7415.98 | H | -66.82 | -47 | -19.82 | CH13 |
| 9887.95 | H | -54.00 | -47 | -7.00 | CH13 |
| 12750.00 | H | --- | -47 | --- | CH13 |

- Note: 1. The emission behavior belongs to narrowband spurious emission.
 2. The frequency is searched to tenth harmonic.
 3. If the emission level is too low to be measured, it is not reported,
 "----" means that the emissions level is too low to be measured.
 4. Mode : wireless 802.11b Transmitting test.



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Receiver Spurious Emissions (Radiated)

CLAUSE 4.3.5.2

| | | | |
|---------------------------------|---------------|----------------|-------------|
| Frequency Range | ABOVE 1GHz | Mode | CH1,7,10,13 |
| Environmental Conditions | 14.6°C, 75%RH | Test By | K. P. Pang |

| Frequency (MHz) | Antenna Polarization | Level (dBm) | Limit (dBm) | Margin | Channel |
|--------------------|-------------------------|----------------|----------------|--------|---------|
| 1000.00 | V | --- | -47 | --- | CH1 |
| 1240.00 | V | -58.94 | -47 | -11.94 | CH1 |
| 4823.98 | V | -54.33 | -47 | -7.33 | CH1 |
| 7235.98 | V | -66.35 | -47 | -19.35 | CH1 |
| 9647.95 | V | -51.92 | -47 | -4.92 | CH1 |
| 12750.00 | V | --- | -47 | --- | CH1 |
| 1000.00 | V | --- | -47 | --- | CH7 |
| 1239.99 | V | -58.89 | -47 | -11.89 | CH7 |
| 4883.98 | V | -54.07 | -47 | -7.07 | CH7 |
| 7326.01 | V | -66.05 | -47 | -19.05 | CH7 |
| 9767.95 | V | -49.94 | -47 | -2.94 | CH7 |
| 12750.00 | V | --- | -47 | --- | CH7 |
| 1000.00 | V | --- | -47 | --- | CH10 |
| 1239.99 | V | -58.97 | -47 | -11.97 | CH10 |
| 4913.97 | V | -53.58 | -47 | -6.58 | CH10 |
| 7371.02 | V | -65.75 | -47 | -18.75 | CH10 |
| 9827.96 | V | -50.90 | -47 | -3.90 | CH10 |
| 12750.00 | V | --- | -47 | --- | CH10 |
| 1000.00 | V | --- | -47 | --- | CH13 |
| 1240.00 | V | -58.90 | -47 | -11.90 | CH13 |
| 4943.98 | V | -53.68 | -47 | -6.68 | CH13 |
| 7416.01 | V | -66.17 | -47 | -19.17 | CH13 |
| 9887.95 | V | -50.46 | -47 | -3.46 | CH13 |
| 12750.00 | V | --- | -47 | --- | CH13 |

- Note:
1. The emission behavior belongs to narrowband spurious emission.
 2. The frequency is searched to tenth harmonic.
 3. If the emission level is too low to be measured, it is not reported, "----" means that the emissions level is too low to be measured.
 4. Mode : wireless 802.11b Transmitting test.



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Receiver Spurious Emissions (Radiated)

CLAUSE 4.3.5.2

| | | | |
|---------------------------------|---------------|----------------|-------------|
| Frequency Range | ABOVE 1GHz | Mode | CH1,7,10,13 |
| Environmental Conditions | 16.1°C, 77%RH | Test By | K. P. Pang |

| Frequency (MHz) | Antenna Polarization | Level (dBm) | Limit (dBm) | Margin | Channel |
|--------------------|-------------------------|----------------|----------------|--------|---------|
| 1000.00 | H | --- | -47 | --- | CH1 |
| 1239.99 | H | -59.83 | -47 | -12.83 | CH1 |
| 4823.97 | H | -52.35 | -47 | -5.35 | CH1 |
| 7235.98 | H | -66.64 | -47 | -19.64 | CH1 |
| 9647.95 | H | -55.33 | -47 | -8.33 | CH1 |
| 12750.00 | H | --- | -47 | --- | CH1 |
| 1000.00 | H | --- | -47 | --- | CH7 |
| 1240.00 | H | -59.77 | -47 | -12.77 | CH7 |
| 4883.97 | H | -52.55 | -47 | -5.55 | CH7 |
| 7326.01 | H | -67.03 | -47 | -20.03 | CH7 |
| 9767.96 | H | -54.64 | -47 | -7.64 | CH7 |
| 12750.00 | H | --- | -47 | --- | CH7 |
| 1000.00 | H | --- | -47 | --- | CH10 |
| 1239.99 | H | -59.81 | -47 | -12.81 | CH10 |
| 4913.97 | H | -52.98 | -47 | -5.98 | CH10 |
| 7371.01 | H | -66.68 | -47 | -19.68 | CH10 |
| 9827.96 | H | -54.01 | -47 | -7.01 | CH10 |
| 12750.00 | H | --- | -47 | --- | CH10 |
| 1000.00 | H | --- | -47 | --- | CH13 |
| 1239.98 | H | -59.75 | -47 | -12.75 | CH13 |
| 4943.98 | H | -53.36 | -47 | -6.36 | CH13 |
| 7415.99 | H | -66.36 | -47 | -19.36 | CH13 |
| 9887.97 | H | -54.62 | -47 | -7.62 | CH13 |
| 12750.00 | H | --- | -47 | --- | CH13 |

- Note: 1. The emission behavior belongs to narrowband spurious emission.
 2. The frequency is searched to tenth harmonic.
 3. If the emission level is too low to be measured, it is not reported,
 "----" means that the emissions level is too low to be measured.
 4. Mode : wireless 802.11g Transmitting test.



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Receiver Spurious Emissions (Radiated)

CLAUSE 4.3.5.2

| | | | |
|---------------------------------|---------------|----------------|-------------|
| Frequency Range | ABOVE 1GHz | Mode | CH1,7,10,13 |
| Environmental Conditions | 16.1°C, 77%RH | Test By | K. P. Pang |

| Frequency (MHz) | Antenna Polarization | Level (dBm) | Limit (dBm) | Margin | Channel |
|--------------------|-------------------------|----------------|----------------|--------|---------|
| 1000.00 | V | --- | -47 | --- | CH1 |
| 1239.98 | V | -58.85 | -47 | -11.85 | CH1 |
| 4823.97 | V | -54.42 | -47 | -7.42 | CH1 |
| 7235.97 | V | -66.29 | -47 | -19.29 | CH1 |
| 9647.95 | V | -51.75 | -47 | -4.75 | CH1 |
| 12750.00 | V | --- | -47 | --- | CH1 |
| 1000.00 | V | --- | -47 | --- | CH7 |
| 1239.99 | V | -58.72 | -47 | -11.72 | CH7 |
| 4883.96 | V | -53.32 | -47 | -6.32 | CH7 |
| 7326.01 | V | -65.66 | -47 | -18.66 | CH7 |
| 9767.96 | V | -51.57 | -47 | -4.57 | CH7 |
| 12750.00 | V | --- | -47 | --- | CH7 |
| 1000.00 | V | --- | -47 | --- | CH10 |
| 1239.98 | V | -58.75 | -47 | -11.75 | CH10 |
| 4913.98 | V | -53.55 | -47 | -6.55 | CH10 |
| 7371.04 | V | -65.76 | -47 | -18.76 | CH10 |
| 9827.96 | V | -50.14 | -47 | -3.14 | CH10 |
| 12750.00 | V | --- | -47 | --- | CH10 |
| 1000.00 | V | --- | -47 | --- | CH13 |
| 1239.99 | V | -58.80 | -47 | -11.80 | CH13 |
| 4943.98 | V | -53.53 | -47 | -6.53 | CH13 |
| 7415.98 | V | -65.07 | -47 | -18.07 | CH13 |
| 9887.97 | V | -50.08 | -47 | -3.08 | CH13 |
| 12750.00 | V | --- | -47 | --- | CH13 |

- Note: 1. The emission behavior belongs to narrowband spurious emission.
 2. The frequency is searched to tenth harmonic.
 3. If the emission level is too low to be measured, it is not reported,
 "----" means that the emissions level is too low to be measured.
 4. Mode : wireless 802.11g Transmitting test.



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12. APPENDIX 1 PHOTOGRPHS OF SPURIOUS EMISSION TEST CONFIGURATION





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13. APPENDIX 2 PHOTOGRPHS OF SPURIOUS EMISSION TEST CONFIGURATION

