

FCC Test Report

(PART 22)

Report No.: RF141226D01-2

FCC ID: P279962MCI

Test Model: 9962 Multi-Standard Enterprise Cell

Series Model: 9962 Multi-Standard Enterprise Cellxxxxx
(where "x" is blank, number or any characters)

Received Date: Dec. 26, 2014

Test Date: Jan. 7 ~ 26, 2015

Issued Date: Feb. 5, 2015

Applicant: Sercomm Corp.

Address: 8F, No. 3-1, YuangQu St., NanKang, Taipei 115, Taiwan, R.O.C. (NanKang Software Park)

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

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Release Control Record

Issue No.	Description	Date Issued
RF141226D01-5	Original release.	Feb. 5, 2015



1 Certificate of Conformity

Product: 9962 Multi-Standard AP; Metro Cell Indoor

Brand: Alcatel-Lucent

Test Model: 9962 Multi-Standard Enterprise Cell

Series Model: 9962 Multi-Standard Enterprise Cellxxxxx
(where "x" is blank, number or any characters)

Sample Status: Engineering sample

Applicant: Sercomm Corp.

Test Date: Jan. 7 ~ 26, 2015

Standards: FCC Part 22

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

Prepared by : Annie Chang , **Date:** Feb. 5, 2015
Annie Chang / Supervisor

Approved by : Rex Lai , **Date:** Feb. 5, 2015
Rex Lai / Assistant Manage

2 Summary of Test Results

Applied Standard: FCC Part 22 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 22.913 (a)	Effective radiated power	PASS	Meet the requirement of limit.
-	Peak To Average Ratio	PASS	Meet the requirement of limit.
2.1055 22.355	Frequency Stability	PASS	Meet the requirement of limit.
2.1049	Occupied Bandwidth	PASS	Meet the requirement of limit.
22.917	Band Edge Measurements	PASS	Meet the requirement of limit.
2.1051 22.917	Conducted Spurious Emissions	PASS	Meet the requirement of limit.
2.1053 22.917	Radiated Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -21.97dB at 5272.08MHz.

2.1 Measurement Uncertainty

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

Measurement	Expanded Uncertainty (k=2) (\pm)
Radiated Emissions up to 1 GHz	4.00 dB
Radiated Emissions above 1 GHz	3.36 dB



2.2 Test Site And Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
HP Preamplifier	8447D	2432A03504	Feb. 26, 2014	Feb. 25, 2015
HP Preamplifier	8449B	3008A01201	Feb. 26, 2014	Feb. 25, 2015
MITEQ Preamplifier	AMF-6F-260400-33-8P	892164	Mar. 01, 2014	Feb. 28, 2015
Agilent Spectrum	E4446A	MY51100050	Oct. 24, 2014	Oct. 23, 2015
Agilent TEST RECEIVER	N9038A	MY51210129	Jan. 20, 2015	Jan. 19, 2016
Schwarzbeck Antenna	VULB 9168	139	Feb. 24, 2014	Feb. 23, 2015
Schwarzbeck Antenna	VHBA 9123	480	May 29, 2013	May 28, 2015
Schwarzbeck Horn Antenna	BBHA-9170	212	Aug. 26, 2014	Aug. 25, 2015
Schwarzbeck Horn Antenna	BBHA 9120-D1	D130	Aug. 26, 2014	Aug. 25, 2015
ADT. Turn Table	TT100	0306	NA	NA
ADT. Tower	AT100	0306	NA	NA
Software	ADT_Radiated_V7.6.15.9.4	NA	NA	NA
SUHNER RF cable	SF104	CABLE-CH6	Aug. 15, 2014	Aug. 14, 2015
SUHNER RF cable	SF102	Cable-CH8-3.6m	Aug. 15, 2014	Aug. 14, 2015
EMCO Horn Antenna	3115	00028257	Aug. 28, 2014	Aug. 27, 2015
Highpass filter Wainwright Instruments	WHK 3.1/18G-10SS	SN 8	NA	NA
ROHDE & SCHWARZ Spectrum Analyzer	FSV40	101042	Sep. 29, 2014	Sep. 28, 2015
Anritsu Power Sensor	MA2411B	0738404	Apr. 21, 2014	Apr. 20, 2015
Anritsu Power Meter	ML2495A	0842014	Apr. 21, 2014	Apr. 20, 2015
Temperature & Humidity Chamber	MHU-225AU	920409	May 23, 2014	May 22, 2015

- NOTE:** 1. The calibration interval of the above test instruments is 12/24 months. And the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Chamber No. 6.
4. The Industry Canada Reference No. IC 7450E-6.
5. The FCC Site Registration No. is 447212.

3 General Information

3.1 General Description of EUT

Product	9962 Multi-Standard AP; Metro Cell Indoor
Brand	Alcatel-Lucent
Test Model	9962 Multi-Standard Enterprise Cell
Series Model	9962 Multi-Standard Enterprise Cellxxxxx (where "x" is blank, number or any characters)
Model Difference	Marketing purpose
Status of EUT	Engineering sample
Power Supply Rating	48Vdc from Adapter or 55Vdc from PoE
Modulation Type	WCDMA
Modulation Technology	QPSK, 16QAM,64QAM
Operating Frequency	871.5, 881.0, 891.5
Max. ERP Power	342.77mW
Emission Designator	QPSK: 4M15G7D, 16QAM: 4M17W7D, 64QAM: 4M18W7D
Antenna Type	PIFA Antenna with 2.70dBi gain
Antenna Connector	N/A
Accessory Device	Adapter, PoE
Data Cable Supplied	GPS cable (8m)

Note:

- The EUT uses following adapter or PoE:

Adaprer:

Brand	AmpowerTek
Model	AU60AA-00
Input Power	100-240V, 50-60Hz, 1.5A
Output Power	48V, 1.25A
Power Line	Non-shielded AC 3-Pin cable (1.5m) Non-shielded DC cable (1.2m) with one ferrite core

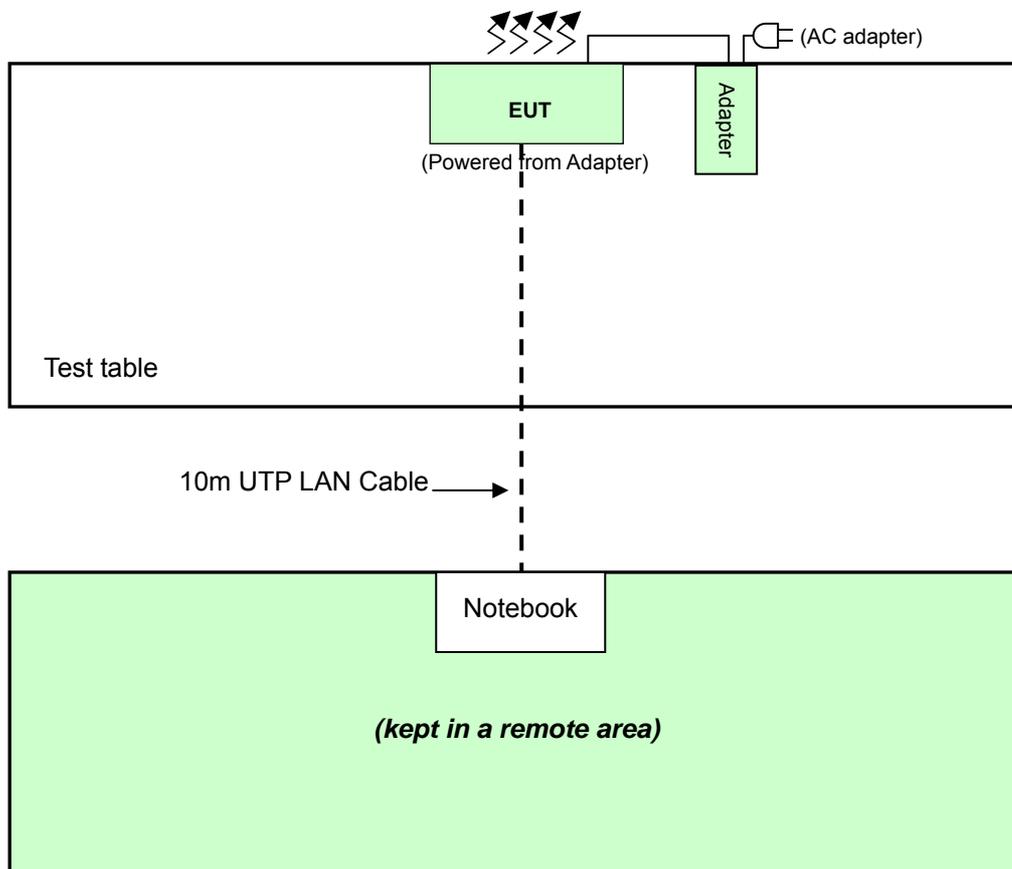
PoE:

Brand	Microsemi
Model	PD-9601G/AC
Input Power	100-240V, 50-60Hz, 1.35A
Output Power	55V, 1.75A

After pre-tested, adapter mode was the worst case, therefore, only its test data was recorded in the report.

- SW version is V1.4.0.1.
- HW version is D01_W.
- The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 Configuration of System Under Test



3.2.1 Description Of Support Units

No.	Product	Brand	Model No.	Serial No.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP04X	1W9ZZ1S	FCC DoC Approved

No.	Signal Cable Description Of The Above Support Units
1	10m UTP LAN cable

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

3.3 Test Mode Applicability and Tested Channel Detail

Test Item	Available Frequency	Tested Frequency	Modulation
ERP	871.5 to 891.5	871.5, 881.0, 891.5	QPSK, 16QAM, 64QAM
Frequency Stability	871.5 to 891.5	871.5	-
Occupied Bandwidth	871.5 to 891.5	871.5, 881.0, 891.5	QPSK, 16QAM, 64QAM
Band Edge	871.5 to 891.5	871.5, 891.5	QPSK, 16QAM, 64QAM
Peak To Average Ratio	871.5 to 891.5	871.5, 891.5	QPSK, 16QAM, 64QAM
Condcudeted Emission	871.5 to 891.5	871.5, 881.0, 891.5	QPSK, 16QAM, 64QAM
Radiated Emission Below 1GHz	871.5 to 891.5	871.5	QPSK
Radiated Emission Above 1GHz	871.5 to 891.5	871.5, 881.0, 891.5	QPSK

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
ERP	19deg. C, 75%RH	120Vac, 60Hz	Aaron You
Frequency Stability	19deg. C, 75%RH	120Vac, 60Hz	Aaron You
Occupied Bandwidth	19deg. C, 75%RH	120Vac, 60Hz	Aaron You
Band Edge	19deg. C, 75%RH	120Vac, 60Hz	Aaron You
Peak To Average Ratio	19deg. C, 75%RH	120Vac, 60Hz	Aaron You
Condcudeted Emission	19deg. C, 75%RH	120Vac, 60Hz	Aaron You
Radiated Emission	19deg. C, 75%RH	120Vac, 60Hz	Aaron You

3.4 EUT Operating Conditions

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency

3.5 General Description of Applied Standards

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

FCC 47 CFR Part 2

FCC 47 CFR Part 22

KDB 971168 D01 Power Meas License Digital Systems v02r01

ANSI/TIA/EIA-603-C 2004

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

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

Mobile / Portable station are limited to 7 watts e.r.p.

4.1.2 Test Procedures

EIRP / ERP Measurement:

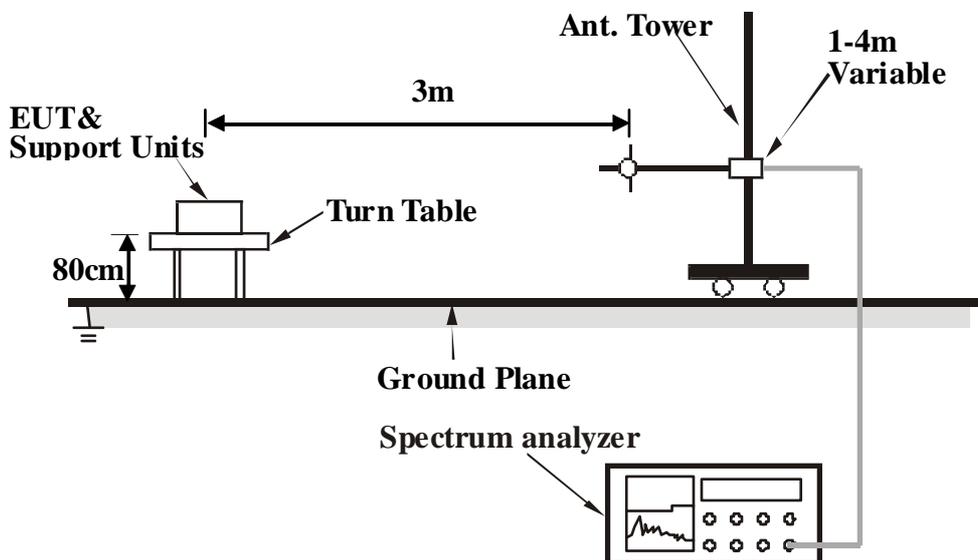
- a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 5MHz for WCDMA mode.
- b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- c. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a tx cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step b. Record the power level of S.G
- d. $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, $E.R.P \text{ power} = E.I.P.R \text{ power} - 2.15\text{dBi}$.

Conducted Power Measurement:

The EUT was set up for the maximum power with WCDMA link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

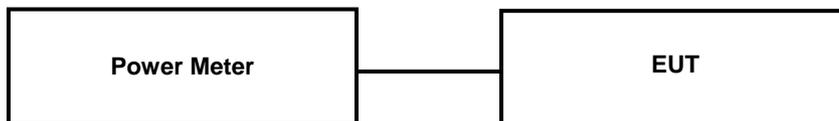
4.1.3 Test Setup

EIRP / ERP MEASUREMENT:



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

CONDUCTED POWER MEASUREMENT:



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

4.1.4 Test Results

CONDUCTED OUTPUT POWER (dBm)

Frequency (MHz)	CONDUCTED OUTPUT POWER (dBm)		
	QPSK	16QAM	64QAM
871.5	24.09	24.18	24.11
881.0	24.15	24.22	24.19
891.5	24.13	24.20	24.20

ERP Power (dBm)
QPSK

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Limit (dBm)	Margin (dB)
1	871.5	22.89	-1.29	21.60	144.54	38.45	-16.85
2	881.0	23.58	-1.29	22.29	169.43	38.45	-16.16
3	891.5	26.64	-1.29	25.35	342.77	38.45	-13.10
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Limit (dBm)	Margin (dB)
1	871.5	19.50	-1.29	18.21	66.22	38.45	-20.24
2	881.0	20.75	-1.29	19.46	88.31	38.45	-18.99
3	891.5	21.60	-1.29	20.31	107.40	38.45	-18.14

NOTE: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

16QAM

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Limit (dBm)	Margin (dB)
1	871.5	22.66	-1.29	21.37	137.09	38.45	-17.08
2	881.0	23.53	-1.29	22.24	167.49	38.45	-16.21
3	891.5	26.46	-1.29	25.17	328.85	38.45	-13.28
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Limit (dBm)	Margin (dB)
1	871.5	19.17	-1.29	17.88	61.38	38.45	-20.57
2	881.0	21.21	-1.29	19.92	98.17	38.45	-18.53
3	891.5	22.28	-1.29	20.99	125.60	38.45	-17.46

NOTE: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

64QAM

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Limit (dBm)	Margin (dB)
1	871.5	22.76	-1.29	21.47	140.28	30.00	-16.98
2	881.0	23.43	-1.29	22.14	163.68	30.00	-16.31
3	891.5	26.53	-1.29	25.24	334.20	30.00	-13.21
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	EIRP (mW)	Limit (dBm)	Margin (dB)
1	871.5	19.41	-1.29	18.12	64.86	30.00	-20.33
2	881.0	20.86	-1.29	19.57	90.57	30.00	-18.88
3	891.5	22.05	-1.29	20.76	119.12	30.00	-17.69

NOTE: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

4.2 Frequency Stability Measurement

4.2.1 Limits of Frequency Stability Measurement

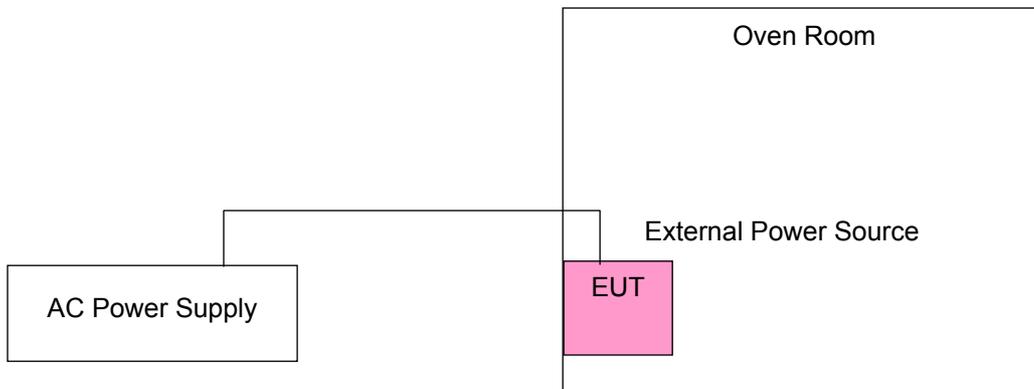
1.5 ppm is for base and fixed station. 2.5 ppm is for mobile station.

4.2.2 Test Procedure

- a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- b. EUT is connected the external power supply to control the AC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
- c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the ± 0.5 °C during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

NOTE: The frequency error was recorded frequency error from the communication simulator.

4.2.3 Test Setup



4.2.4 Test Results

Frequency Error vs. Voltage

Voltage (Volts)	Frequency Error (ppm)	Limit (ppm)
126.5	0.0091795754	2.5
120.0	0.0034423408	2.5
93.5	0.0080321285	2.5

Frequency Error vs. Temperature.

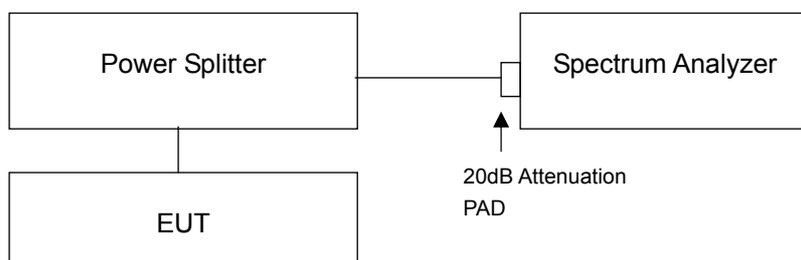
TEMP. (°C)	Frequency Error (ppm)	Limit (ppm)
50	0.0068846816	2.5
40	0.0068846816	2.5
30	0.0057372347	2.5
20	0.0034423408	2.5
10	0.0045897877	2.5
0	0.0068846816	2.5
-10	0.0057372347	2.5
-20	0.0022948939	2.5

4.3 Occupied Bandwidth Measurement

4.3.1 Test Procedure

The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

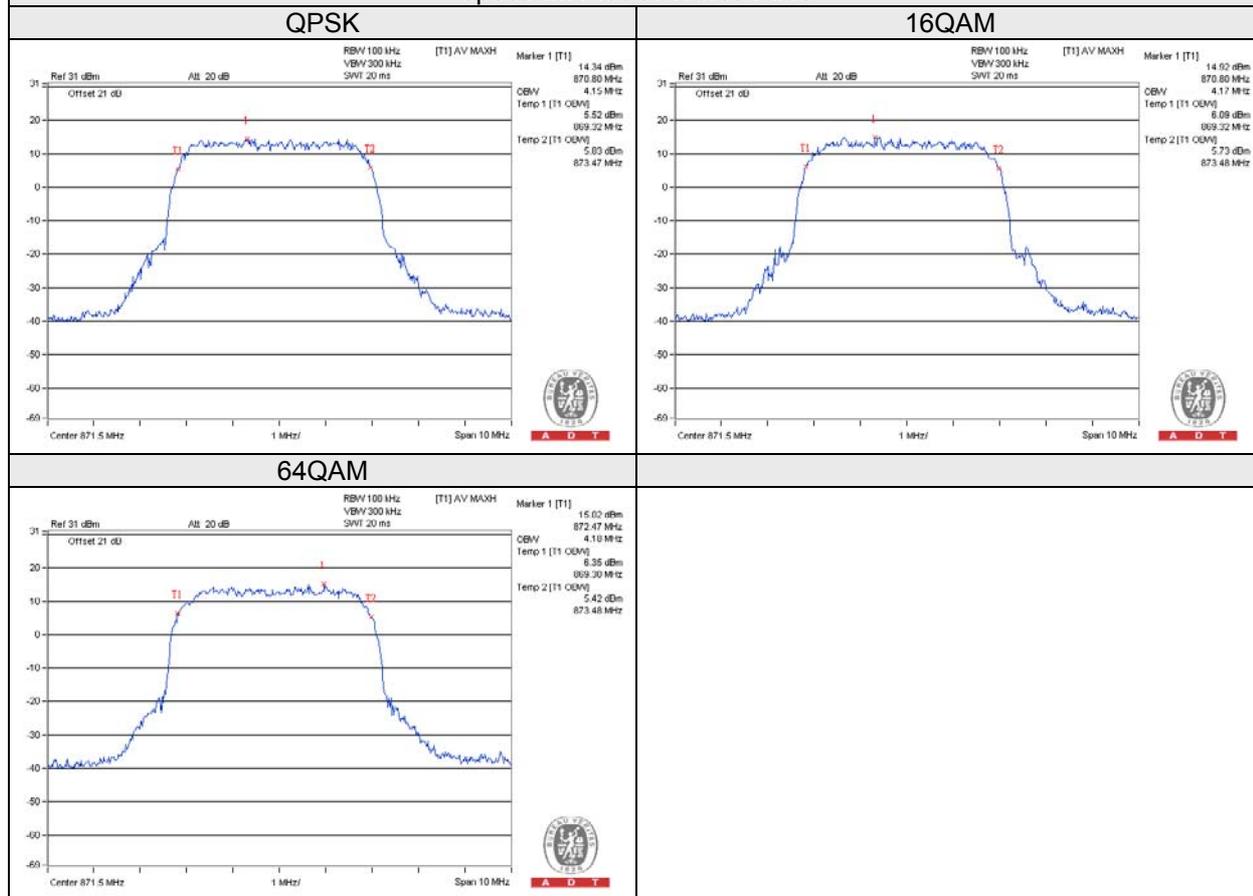
4.3.2 Test Setup



4.3.3 Test Result

Frequency (MHz)	99% Occupied Bandwidth (MHz)		
	QPSK	16QAM	64QAM
871.5	4.15	4.17	4.18
881.0	4.15	4.15	4.13
891.5	4.13	4.13	4.12

Spectrum Plot Of Worst Value

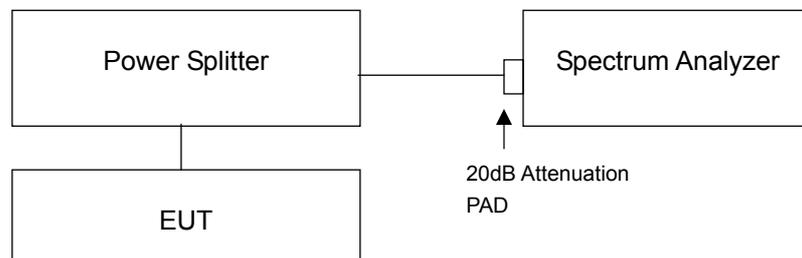


4.4 Band Edge Measurement

4.4.1 Limits of Band Edge Measurement

Power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

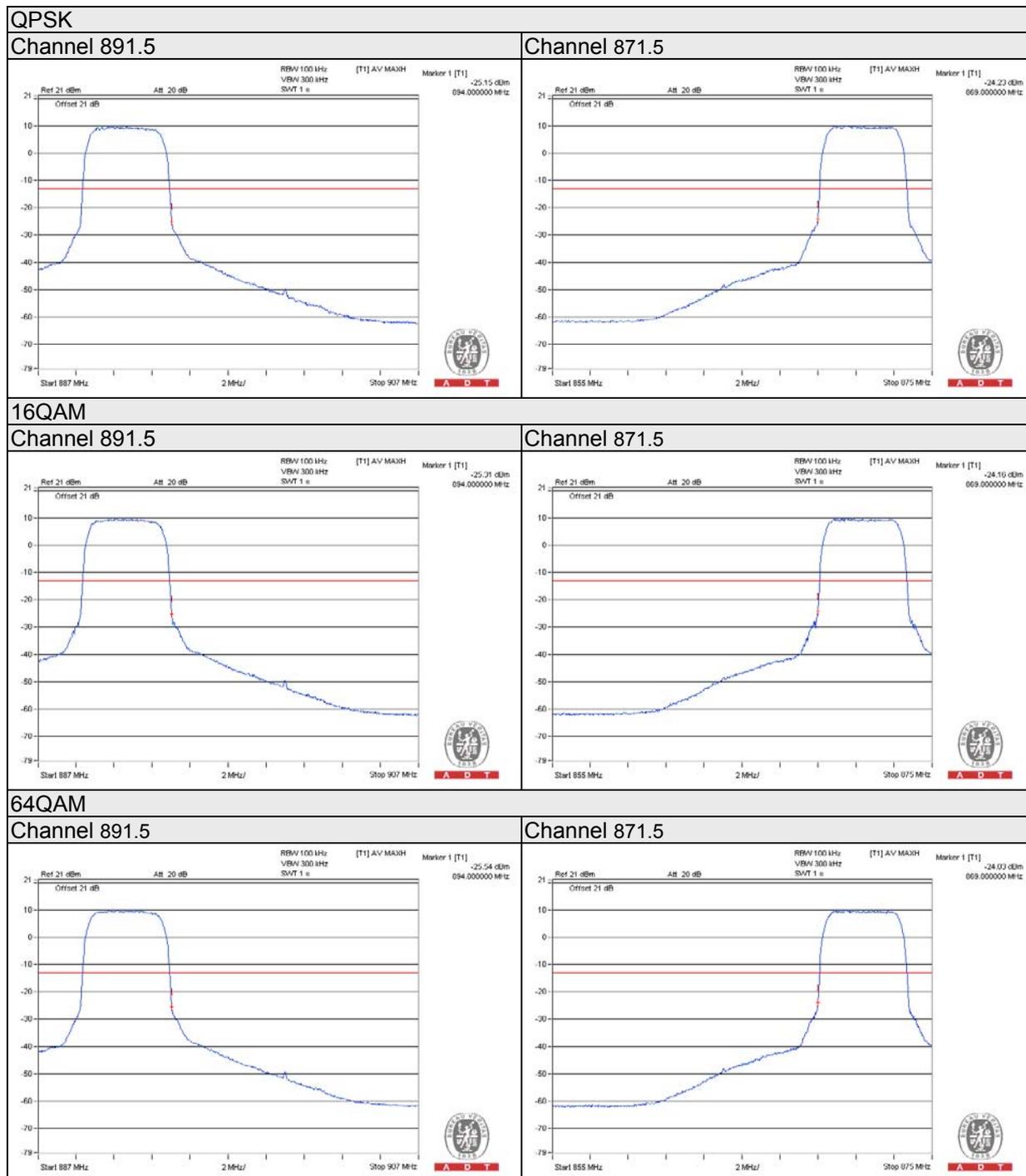
4.4.2 Test Setup



4.4.3 Test Procedures

- All measurements were done at low and high operational frequency range.
- The center frequency of spectrum is the band edge frequency and span is 10MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz.
- Record the max trace plot into the test report.

4.4.4 Test Results

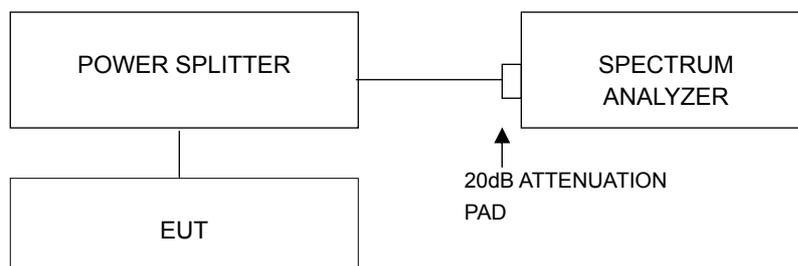


4.5 Peak To Average Ratio

4.5.1 Limits of Peak To Average Ratio Measurement

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB

4.5.2 Test Setup



4.5.3 Test Procedures

1. Set resolution/measurement bandwidth \geq signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1%.

4.5.4 Test Results

Frequency (MHz)	Peak To Average Ratio (dB)		
	QPSK	16QAM	64QAM
871.5	7.67	7.68	7.74
881.0	7.55	7.57	7.59
891.5	7.69	7.71	7.75

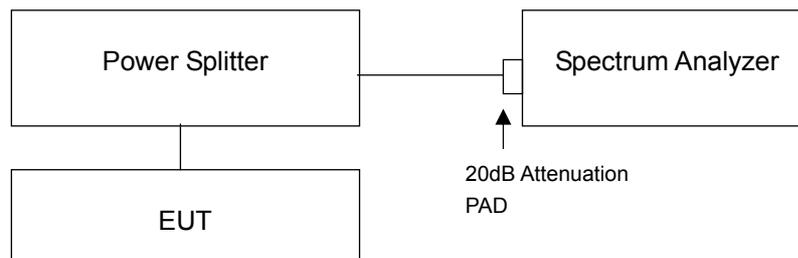


4.6 Conducted Spurious Emissions

4.6.1 Limits of Conducted Spurious Emissions Measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The emission limit equal to -13dBm .

4.6.2 Test Setup

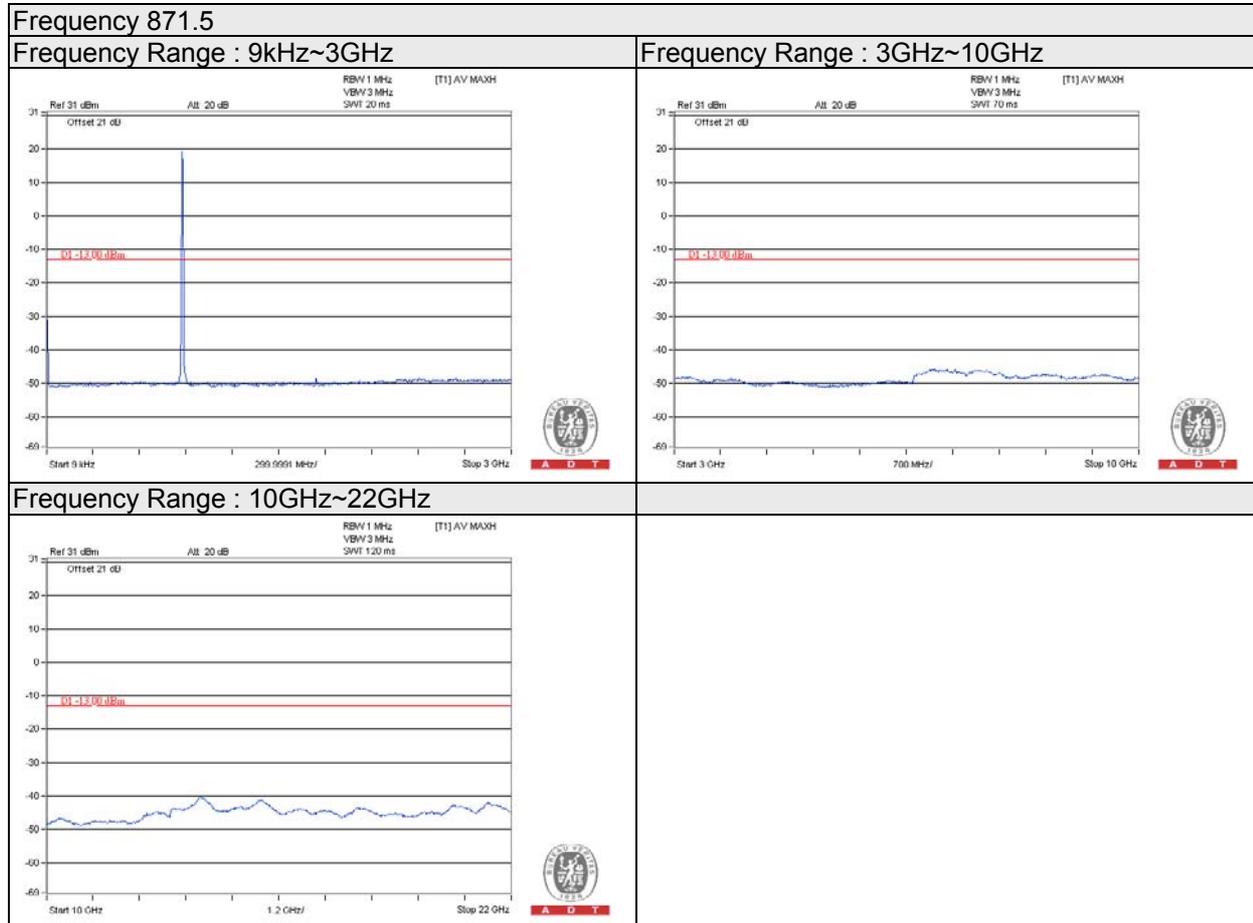


4.6.3 Test Procedure

- The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- Measuring frequency range is from 9 kHz to 22GHz. 20dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

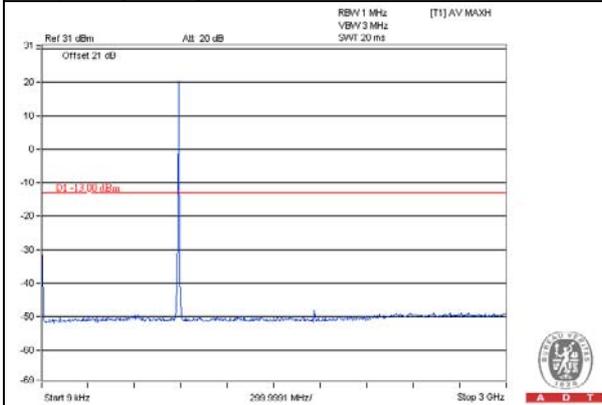
4.6.4 Test Results

QPSK

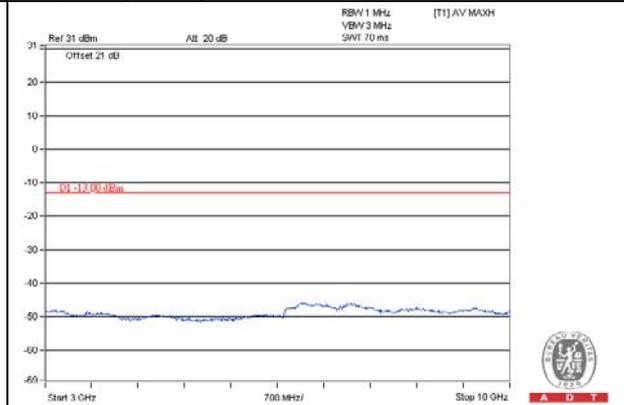


Frequency 881.0

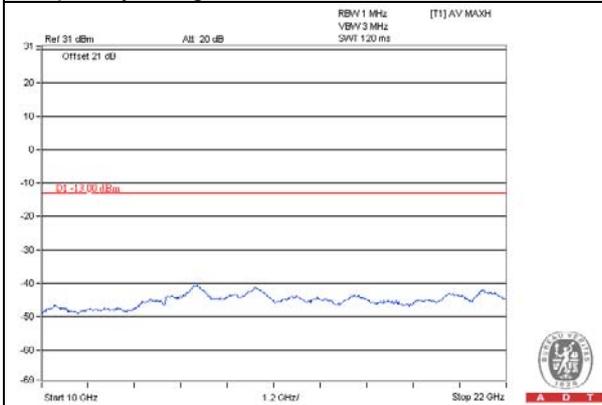
Frequency Range : 9kHz~3GHz



Frequency Range : 3GHz~10GHz

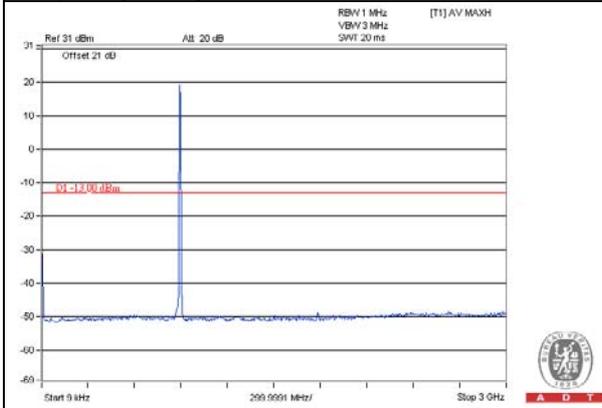


Frequency Range : 10GHz~22GHz

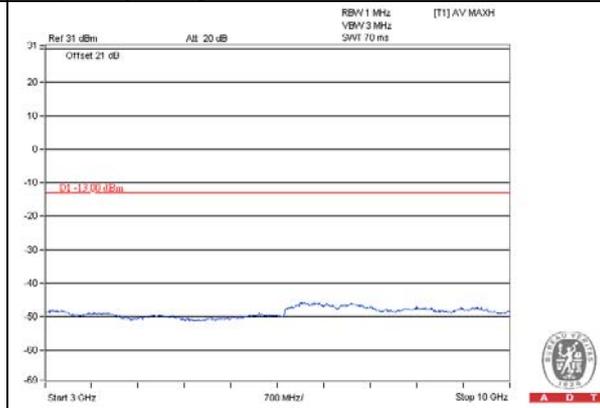


Frequency 891.5

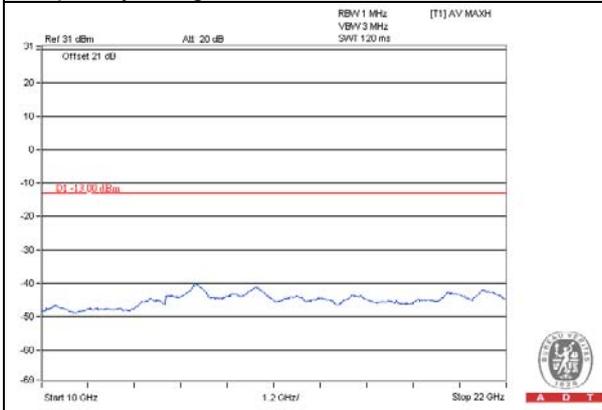
Frequency Range : 9kHz~3GHz



Frequency Range : 3GHz~10GHz



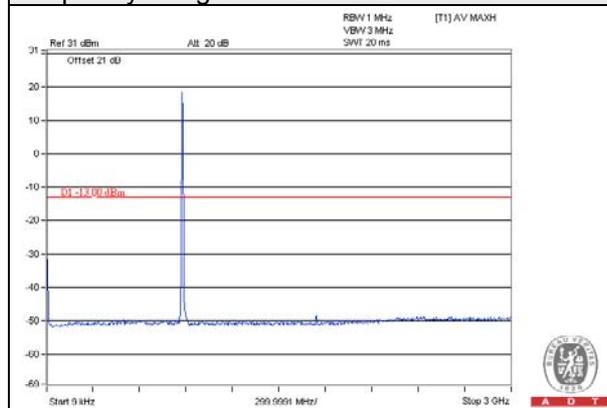
Frequency Range : 10GHz~22GHz



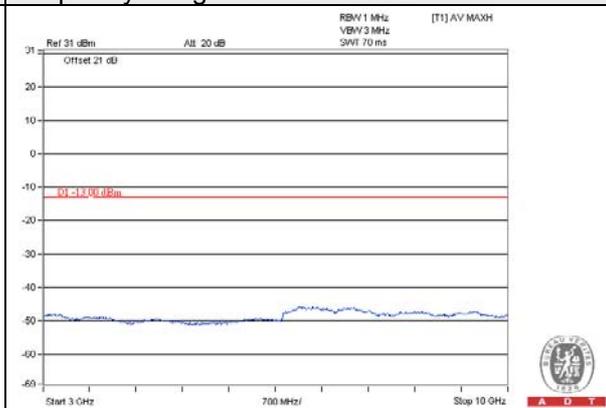
16QAM

Frequency 871.5

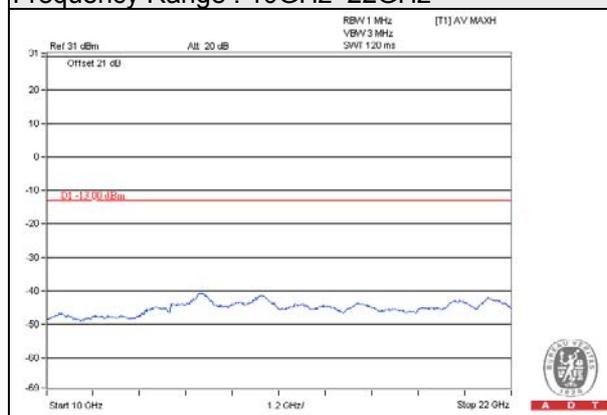
Frequency Range : 9kHz~3GHz



Frequency Range : 3GHz~10GHz

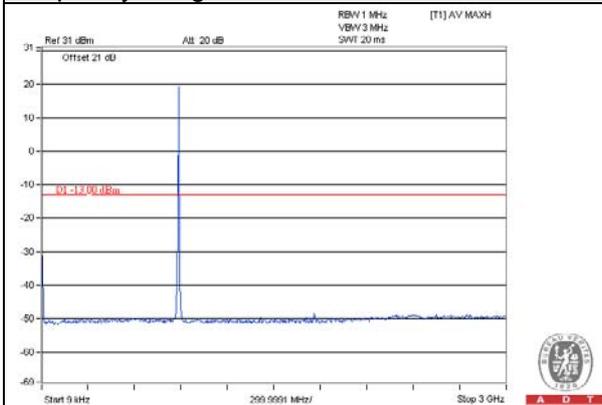


Frequency Range : 10GHz~22GHz

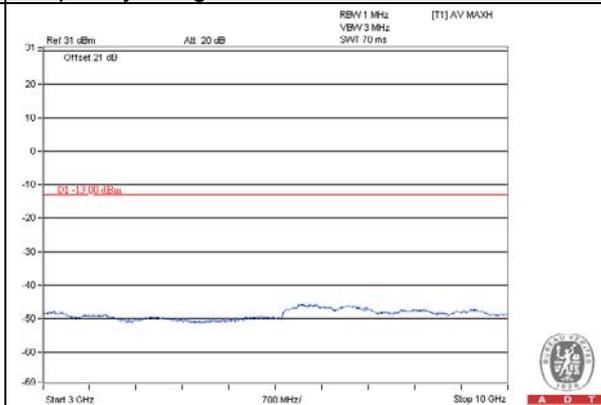


Frequency 881.0

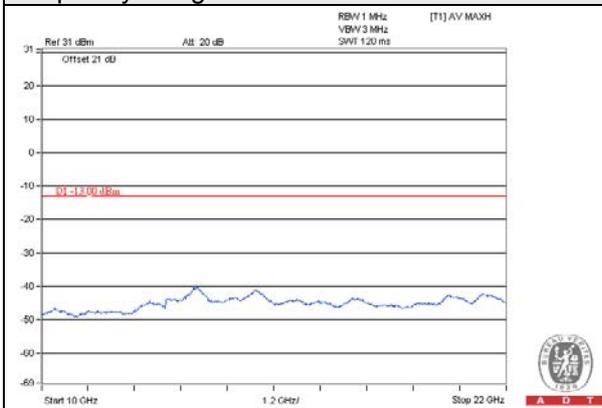
Frequency Range : 9kHz~3GHz



Frequency Range : 3GHz~10GHz

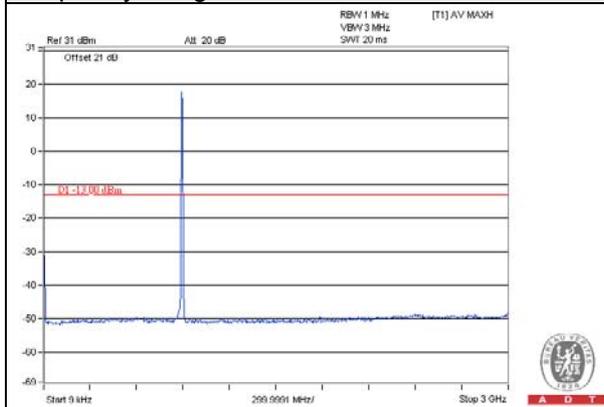


Frequency Range : 10GHz~22GHz

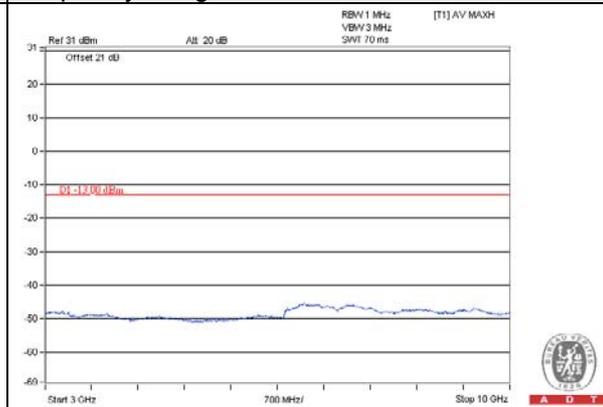


Frequency 891.5

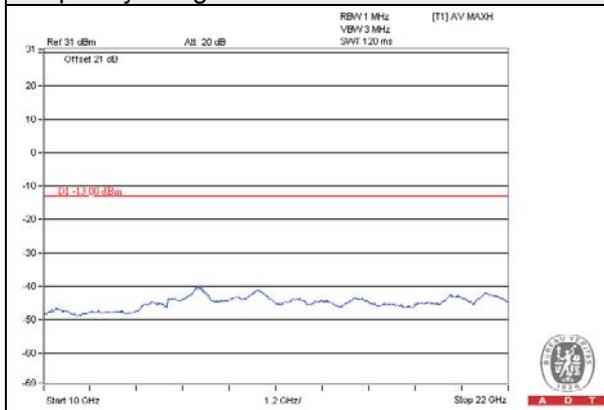
Frequency Range : 9kHz~3GHz



Frequency Range : 3GHz~10GHz



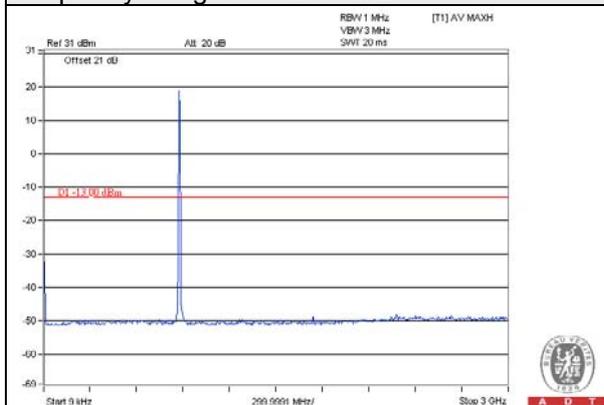
Frequency Range : 10GHz~22GHz



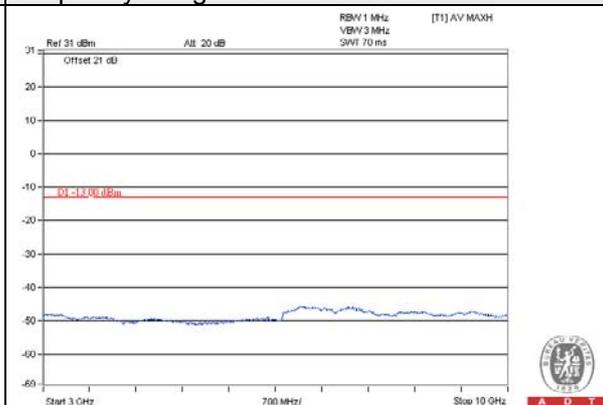
64QAM

Frequency 871.5

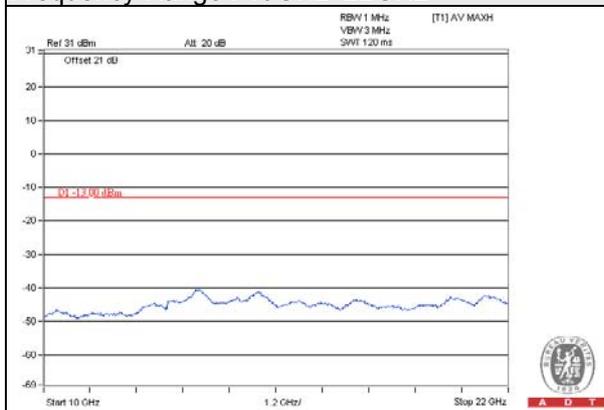
Frequency Range : 9kHz~3GHz



Frequency Range : 3GHz~10GHz

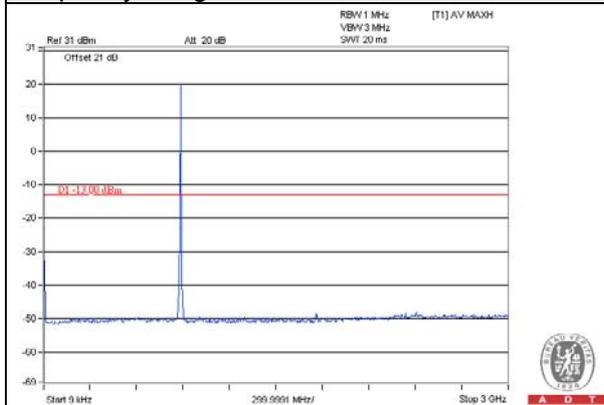


Frequency Range : 10GHz~22GHz

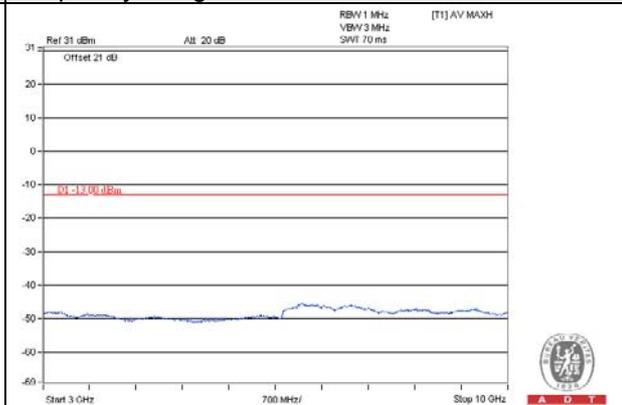


Frequency 881.0

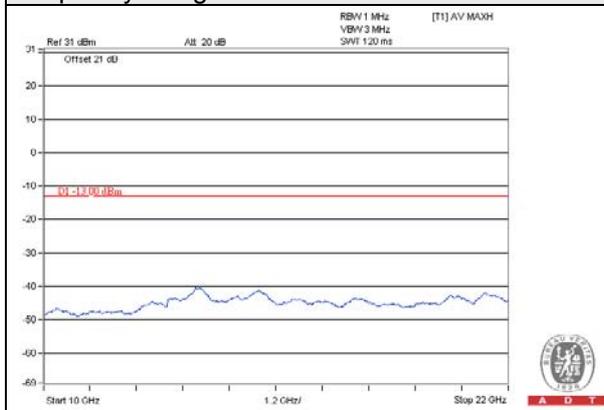
Frequency Range : 9kHz~3GHz

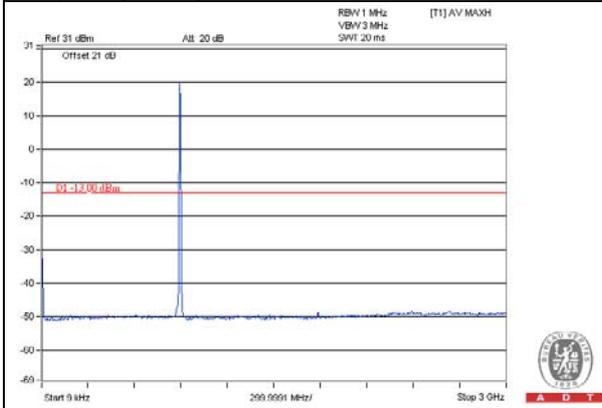
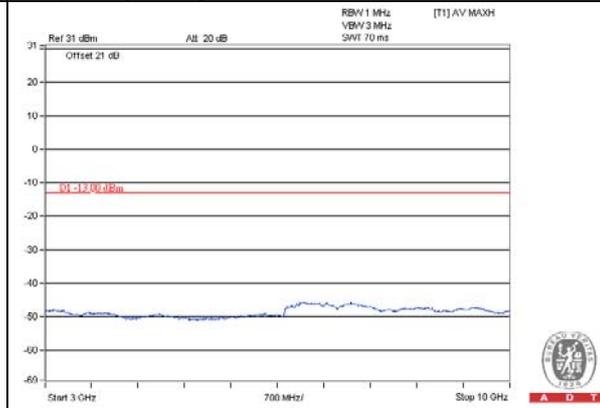
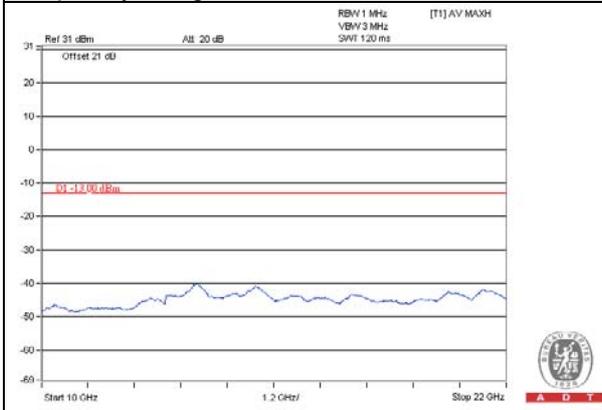


Frequency Range : 3GHz~10GHz



Frequency Range : 10GHz~22GHz



Frequency 891.5**Frequency Range : 9kHz~3GHz****Frequency Range : 3GHz~10GHz****Frequency Range : 10GHz~22GHz**

4.7 Radiated Emission Measurement

4.7.1 Limits of Radiated Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The emission limit equal to -13dBm .

4.7.2 Test Procedure

- a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value " of step a. Record the power level of S.G
- c. $\text{EIRP} = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$.
- d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, $\text{E.R.P power} = \text{E.I.P.R power} - 2.15\text{dBi}$.

NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

4.7.3 Deviation from Test Standard

No deviation.

4.7.4 Test Setup

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

4.7.5 Test Results

BELOW 1GHz

QPSK

Mode	TX channel 871.5	Frequency Range	Below 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	49.40	-51.48	-54.79	6.78	-48.01	-13.00	-35.01
2	152.22	-50.22	-57.89	6.78	-51.11	-13.00	-38.11
3	404.42	-49.48	-58.73	6.78	-51.95	-13.00	-38.95
4	672.14	-48.57	-53.16	6.78	-46.38	-13.00	-33.38
5	757.50	-48.87	-51.29	6.78	-44.51	-13.00	-31.51
6	980.60	-48.53	-48.04	6.78	-41.26	-13.00	-28.26
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	61.04	-51.47	-51.68	6.78	-44.90	-13.00	-31.90
2	146.40	-50.49	-57.39	6.78	-50.61	-13.00	-37.61
3	340.40	-51.50	-58.40	6.78	-51.62	-13.00	-38.62
4	553.80	-49.30	-55.11	6.78	-48.33	-13.00	-35.33
5	776.90	-48.14	-50.31	6.78	-43.53	-13.00	-30.53
6	959.26	-50.15	-49.70	6.78	-42.92	-13.00	-29.92

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



ABOVE 1GHz

QPSK

Mode	TX channel 871.5	Frequency Range	Above 1000MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1744.19	-45.44	-57.67	12.03	-45.64	-13.00	-32.64
2	3640.23	-56.32	-67.91	17.56	-50.35	-13.00	-37.35
3	6568.41	-57.33	-71.41	24.09	-47.32	-13.00	-34.32
4	9496.05	-55.38	-73.37	29.15	-44.22	-13.00	-31.22
5	10984.18	-56.85	-69.61	28.73	-40.88	-13.00	-27.88
6	12712.34	-56.23	-72.22	31.99	-40.23	-13.00	-27.23

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1744.21	-54.13	-66.36	12.03	-54.33	-13.00	-41.33
2	3592.12	-56.62	-67.28	17.07	-50.21	-13.00	-37.21
3	5272.08	-43.55	-56.77	21.80	-34.97	-13.00	-21.97
4	6568.26	-57.30	-71.38	24.09	-47.29	-13.00	-34.29
5	10984.09	-56.80	-69.68	28.73	-40.95	-13.00	-27.95
6	12712.02	-56.22	-71.85	31.99	-39.86	-13.00	-26.86

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Mode	TX channel 881.0	Frequency Range	Above 1000MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1763.25	-46.24	-58.08	12.03	-46.05	-13.00	-33.05
2	3640.13	-56.28	-67.87	17.56	-50.31	-13.00	-37.31
3	6616.24	-57.55	-71.77	24.21	-47.56	-13.00	-34.56
4	9496.08	-55.32	-73.31	29.15	-44.16	-13.00	-31.16
5	11032.10	-57.75	-70.92	29.13	-41.79	-13.00	-28.79
6	12712.00	-56.21	-72.20	31.99	-40.21	-13.00	-27.21

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1763.89	-51.38	-63.24	12.03	-51.21	-13.00	-38.21
2	3526.77	-55.25	-67.79	17.56	-50.23	-13.00	-37.23
3	6568.41	-57.36	-71.44	24.09	-47.35	-13.00	-34.35
4	8920.32	-55.61	-74.06	28.79	-45.27	-13.00	-32.27
5	10984.01	-56.84	-69.72	28.73	-40.99	-13.00	-27.99
6	12712.00	-56.27	-71.90	31.99	-39.91	-13.00	-26.91

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Mode	TX channel 891.5	Frequency Range	Above 1000MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1784.92	-43.14	-54.54	12.02	-42.52	-13.00	-29.52
2	2677.13	-55.82	-67.05	14.59	-52.46	-13.00	-39.46
3	3112.05	-56.34	-67.20	15.72	-51.48	-13.00	-38.48
4	3640.21	-56.31	-67.90	17.56	-50.34	-13.00	-37.34
5	6568.97	-57.34	-71.42	24.09	-47.33	-13.00	-34.33
6	9448.51	-55.70	-73.81	29.19	-44.62	-13.00	-31.62
7	10984.03	-56.82	-69.58	28.73	-40.85	-13.00	-27.85

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1785.23	-47.86	-59.31	12.02	-47.29	-13.00	-34.29
2	3570.22	-56.21	-67.49	17.23	-50.26	-13.00	-37.26
3	5032.01	-58.34	-71.14	21.07	-50.07	-13.00	-37.07
4	6568.62	-57.31	-71.39	24.09	-47.30	-13.00	-34.30
5	9304.41	-55.72	-74.26	29.07	-45.19	-13.00	-32.19
6	10984.00	-56.89	-69.77	28.73	-41.04	-13.00	-28.04

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

5 Pictures of Test Arrangements

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





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.

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

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Web Site: www.bureauveritas-adt.com

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

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