FCC Test Report

(PART 24)

Report No.: RF160121E07

FCC ID: 2AD8UFW2FADPM01

Test Model: FW2FADPM01

Received Date: Jan. 21, 2016

Test Date: Feb. 01 to 17, 2016

Issued Date: Mar. 04, 2016

Applicant: Nokia Solutions and Networks

Address: 1455 West Shure Drive, Arlington Heights, IL 60004, USA

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

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Test Location (1): E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.

Test Location (2): No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan R.O.C.

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Release Control Record

Issue No.	Description	Date Issued
RF160121E07	Original release.	Mar. 04, 2016

1 Certificate of Conformity

Product: Nokia FW2FA LTE Module

Brand: Nokia

Test Model: FW2FADPM01

Sample Status: MASS-PRODUCTION

Applicant: Nokia Solutions and Networks

Test Date: Feb. 01 to 17, 2016

Standards: FCC Part 24
FCC Part 2

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 : _____ , **Date:** Mar. 04, 2016
Claire Kuan / Specialist

Approved by : _____ , **Date:** Mar. 04, 2016
May Chen / Manager

2 Summary of Test Results

Applied Standard: FCC Part 24 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 24.232	Effective Radiated Power	PASS	Meet the requirement of limit.
2.1046 24.232(d)	Peak To Average Ratio	PASS	Meet the requirement of limit.
2.1055 24.235	Frequency Stability	PASS	Meet the requirement of limit.
2.1049 24.238(b)	Occupied Bandwidth	PASS	Meet the requirement of limit.
24.238(b)	Band Edge Measurements	PASS	Meet the requirement of limit.
2.1051 24.238	Conducted Spurious Emissions	PASS	Meet the requirement of limit.
2.1053 24.238	Radiated Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -16.23dB at 3970MHz.

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expended Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.19 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	3.43 dB
	6GHz ~ 18GHz	3.49 dB
	18GHz ~ 40GHz	4.11 dB

2.2 Test Site and Instruments

For radiated spurious emissions test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY54450088	July 24, 2015	July 23, 2016
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-01	Nov. 11, 2015	Nov. 10, 2016
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-406	Jan. 04, 2016	Jan. 03, 2017
RF Cable	8D	966-4-1 966-4-2 966-4-3	Apr. 03, 2015	Apr. 02, 2016
Horn_Antenna SCHWARZBECK	BBHA 9120D	9120D-783	Jan. 19, 2016	Jan. 18, 2017
Pre-Amplifier Agilent	8449B	3008A01922	Sep. 19, 2015	Sep. 18, 2016
RF Cable	EMC104-SM-SM-2000 EMC104-SM-SM-5000 EMC104-SM-SM-5000	150318 150323 150324	Mar. 31, 2015	Mar. 30, 2016
Pre-Amplifier EMCI	EMC184045	980143	Jan. 15, 2016	Jan. 14, 2017
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170608	Jan. 08, 2016	Jan. 07, 2017
RF Cable	SUCOFLEX 102	36432/2 36441/2	Jan. 16, 2016	Jan. 15, 2017
Software	ADT_Radiated _V8.7.07	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 966 Chamber No. 4.
3. The FCC Site Registration No. is 292998
4. The CANADA Site Registration No. is 20331-2
5. Tested Date: Feb. 01 to 04, 2016

For other test items:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
SPECTRUM ANALYZER R&S	FSP40	100060	May 08, 2015	May 07, 2016
Spectrum Analyzer Agilent	E4446A	MY48250253	Dec. 22, 2015	Dec. 21, 2016
Power meter Anritsu	ML2495A	1014008	Apr. 28, 2015	Apr. 27, 2016
Power sensor Anritsu	MA2411B	0917122	Apr. 28, 2015	Apr. 27, 2016
AC Power Source EXTECH Electronics	6205	1440452	NA	NA
Temperature & Humidity Chamber GIANTFORCE	GTH-150-40-SP -AR	MAA0812-008	Jan. 15, 2016	Jan. 14, 2017
DC Power Supply Topward	6603D	795558	NA	NA
ESG Vector signal generator Agilent	E4438C	MY45094468/0 05 506 602 UK6 UNJ	Dec. 01, 2015	Nov. 30, 2016
Software	ADT_RF Test Software V6.6.5.3	NA	NA	NA

NOTE:
1. The test was performed in Oven room A.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. Tested Date: Feb. 17, 2016

3 General Information

3.1 General Description of EUT

Product	Nokia FW2FA LTE Module	
Brand	Nokia	
Test Model	FW2FADPM01	
Test Sample S/N	EB162010012, EB154510043	
Hardware Version	X11	
Status of EUT	MASS-PRODUCTION	
Power Supply Rating	12Vdc	
Modulation Type	QPSK, 16QAM, 64QAM	
Transfer Rate	Uplink ：75Mbps , Downlink ：300Mbps	
Operating Frequency	Channel Bandwidth: 5MHz	1932.5MHz ~1987.5MHz
	Channel Bandwidth: 10MHz	1935MHz ~1985MHz
	Channel Bandwidth: 15MHz	1937.5MHz ~1982.5MHz
	Channel Bandwidth: 20MHz	1940MHz ~1980MHz
Number of Channel	Channel Bandwidth: 5MHz	561
	Channel Bandwidth: 10MHz	501
	Channel Bandwidth: 15MHz	451
	Channel Bandwidth: 20MHz	401
Max. EIRP Power	Channel Bandwidth: 5MHz	635.331mW (QPSK)
	Channel Bandwidth: 10MHz	623.735mW (QPSK)
	Channel Bandwidth: 15MHz	625.173mW (QPSK)
	Channel Bandwidth: 20MHz	619.441mW (QPSK)
Emission Designator	Channel Bandwidth: 5MHz	QPSK: 4M51G7D
		16QAM: 4M52W7D
		64QAM: 4M81W7D
	Channel Bandwidth: 10MHz	QPSK: 9M02G7D
		16QAM: 9M02W7D
		64QAM: 9M04W7D
	Channel Bandwidth: 15MHz	QPSK: 13M4G7D
		16QAM: 13M5W7D
		64QAM: 13M5W7D
	Channel Bandwidth: 20MHz	QPSK: 17M9G7D
		16QAM: 17M9W7D
		64QAM: 17M9W7D
Antenna Type	Refer to note as below	
Antenna Connector	Refer to note as below	
Accessory Device	NA	
Data Cable Supplied	NA	

Note:

1. There is LTE technology used for the EUT, which supports 1930~1990MHz frequency band.
2. The EUT incorporates a MIMO function for LTE mode

Channel Bandwidth	Modulation	TX & RX configuration	
5MHz	QPSK, 16QAM, 64QAM	2TX	2RX
10MHz	QPSK, 16QAM, 64QAM	2TX	2RX
15MHz	QPSK, 16QAM, 64QAM	2TX	2RX
20MHz	QPSK, 16QAM, 64QAM	2TX	2RX

3. The EUT's spec. as below table:

Model name	LTE				
	Freq.(MHz)		Freq.(MHz)		Band
FW2FADPM01	UL	BW 5MHz : 1852.5~1907.5	DL	BW 5MHz : 1932.5~1987.5	II
		BW 10MHz : 1855~1905		BW 10MHz : 1935~1985	
		BW 15MHz : 1857.5~1902.5		BW 15MHz : 1937.5~1982.5	
		BW 20MHz : 1860~1902		BW 20MHz : 1940~1980	

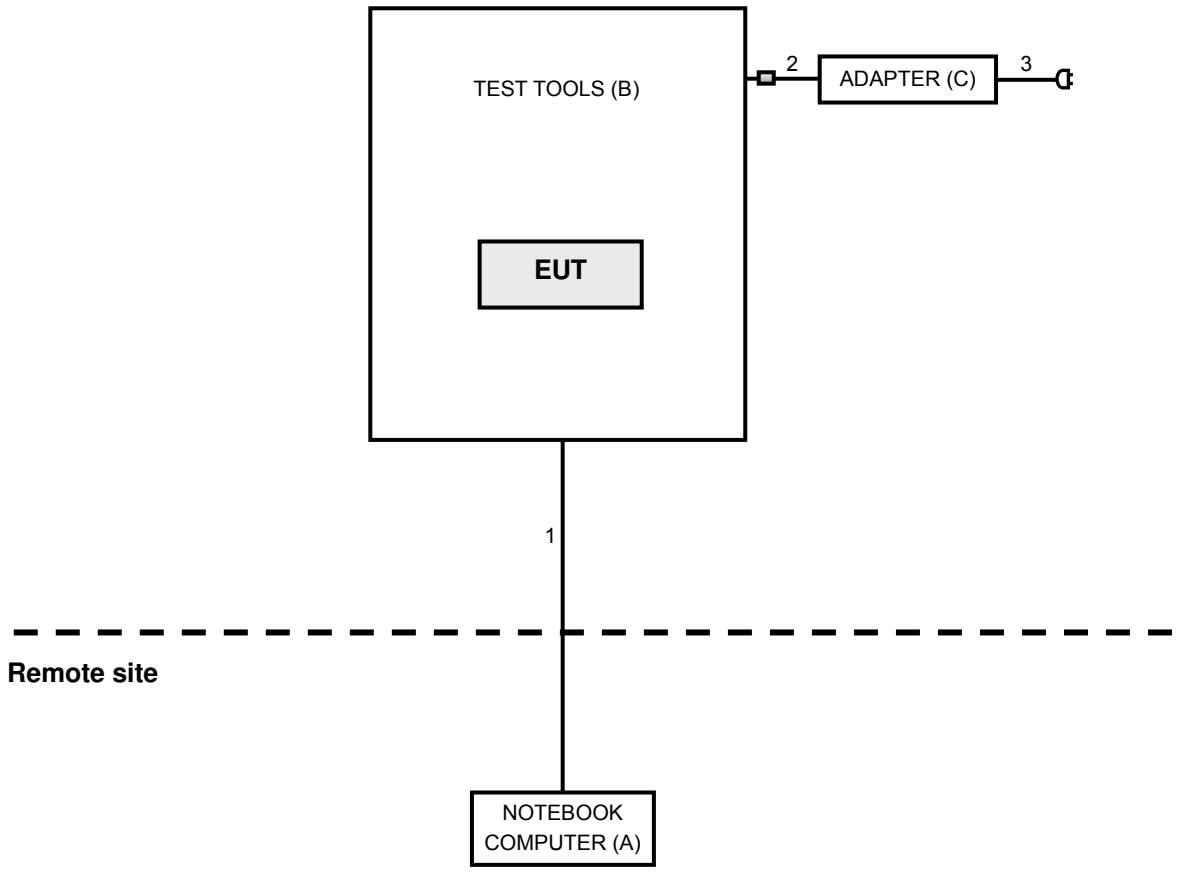
4. The antennas provided to the EUT, please refer to the following table:

Antenna Spec.					
Antenna No	Brand	Model	Antenna Type	Gain(dBi)	Frequency (GHz)
LTE Ant1(Main)	Nokia	FW2FADPM01	Slot Antenna	3.49	1.85~1.91
Antenna No	Brand	Model	Antenna Type	Gain(dBi)	Frequency (GHz)
LTE Ant2(Aux)	Nokia	FW2FADPM01	Slot Antenna	4.11	1.85~1.91

Cable Spec.				
Brand	Model	Connector Type	Cable Loss(dB)	Cable Length (mm)
NA	NA	Right angle MMCX Plug	peak gain included	287

5. 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

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	Remark
A	NOTEBOOK COMPUTER	DELL	D531	CN-0XM006-48643-86L -4472	QDS-BRCM1019	Provided by Lab
B	TEST TOOLS	NA	NA	NA	NA	Supplied by Client
C	ADAPTER	DVE	DSA-60PFE-12	NA	NA	Supplied by Client

NOTE:

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

No.	Cable	Qty.	Length (m)	Shielded (Yes/ No)	Cores (Number)	Remark
1	RJ-45	1	10	No	0	Provided by Lab
2	DC	1	1.2	No	1	Supplied by Client
3	AC	1	1.8	No	0	Supplied by Client

NOTE:

1. The core(s) is(are) originally attached to the cable(s).

3.3 Test Mode Applicability and Tested Channel Detail

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports
The worst case was found when positioned on X-plane. Following channel(s) was (were) selected for the final test as listed below:

Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation
Output Power	615 to 1175	615, 900, 1175	5MHz	QPSK
	650 to 1150	650, 900, 1150	10MHz	QPSK
	675 to 1125	675, 900, 1125	15MHz	QPSK
	700 to 1100	700, 900, 1100	20MHz	QPSK
Frequency Stability	615 to 1175	900	5MHz	QPSK
	650 to 1150	900	10MHz	QPSK
	675 to 1125	900	15MHz	QPSK
	700 to 1100	900	20MHz	QPSK
Emission Bandwidth	615 to 1175	615, 900, 1175	5MHz	QPSK, 16QAM, 64QAM
	650 to 1150	650, 900, 1150	10MHz	QPSK, 16QAM, 64QAM
	675 to 1125	675, 900, 1125	15MHz	QPSK, 16QAM, 64QAM
	700 to 1100	700, 900, 1100	20MHz	QPSK, 16QAM, 64QAM
Channel Edge	615 to 1175	615, 1175	5MHz	QPSK
	650 to 1150	650, 1150	10MHz	QPSK
	675 to 1125	675, 1125	15MHz	QPSK
	700 to 1100	700, 1100	20MHz	QPSK
Peak To Average Ratio	615 to 1175	615, 900, 1175	5MHz	QPSK, 16QAM, 64QAM
	650 to 1150	650, 900, 1150	10MHz	QPSK, 16QAM, 64QAM
	675 to 1125	675, 900, 1125	15MHz	QPSK, 16QAM, 64QAM
	700 to 1100	700, 900, 1100	20MHz	QPSK, 16QAM, 64QAM
Condcudeted Emission	615 to 1175	615, 900, 1175	5MHz	QPSK
	650 to 1150	650, 900, 1150	10MHz	QPSK
	675 to 1125	675, 900, 1125	15MHz	QPSK
	700 to 1100	700, 900, 1100	20MHz	QPSK
Radiated Emission Below 1GHz	615 to 1175	615, 900, 1175	5MHz	QPSK
	650 to 1150	650, 900, 1150	10MHz	QPSK
	675 to 1125	675, 900, 1125	15MHz	QPSK
	700 to 1100	700, 900, 1100	20MHz	QPSK
Radiated Emission Above 1GHz	615 to 1175	615, 900, 1175	5MHz	QPSK
	650 to 1150	650, 900, 1150	10MHz	QPSK
	675 to 1125	675, 900, 1125	15MHz	QPSK
	700 to 1100	700, 900, 1100	20MHz	QPSK

*This module is based on FW2XXXX host assembly provide base band data during testing.

NOTE:

1. For Radiated Emission, EUT has been pre-tested under following test samples, and sample B was the worst case for final test. For other test items, the Sample S/N: EB154510043 was chosen for the test mode.

Sample	Model
A	Sample S/N: EB162010012
B	**Sample S/N: EB154510043**

2. All supported modulation types were evaluated.The Worst case emaission of QPSK was selected. Therefore, the EIRP power, Frequency Stability, Channel Edge, Conducted Emission and Radiated Emission were presented under QPSK mode only.

Test Condition:

Test Item	Environmental Conditions	Input Power (System)	Tested By
EIRP	19deg. C, 64%RH	120Vac, 60Hz	Robert Cheng
Frequency Stability	19deg. C, 64%RH	120Vac, 60Hz	Robert Cheng
Occupied Bandwidth	19deg. C, 64%RH	120Vac, 60Hz	Robert Cheng
Band Edge	19deg. C, 64%RH	120Vac, 60Hz	Robert Cheng
Peak To Average Ratio	19deg. C, 64%RH	120Vac, 60Hz	Robert Cheng
Condcudeted Emission	20deg. C, 62%RH	120Vac, 60Hz	Robert Cheng
Radiated Emission	21deg. C, 63%RH	120Vac, 60Hz	Jyunchun Lin

Note: Above input power with the AC/DC PSU used during testing.

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 24

KDB 971168 D01 Power Meas License Digital Systems v02r02

ANSI/TIA/EIA-603-D 2010

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 2 watts e.i.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 10MHz for LTE mode.

b. Substitution method is used for EIRP 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

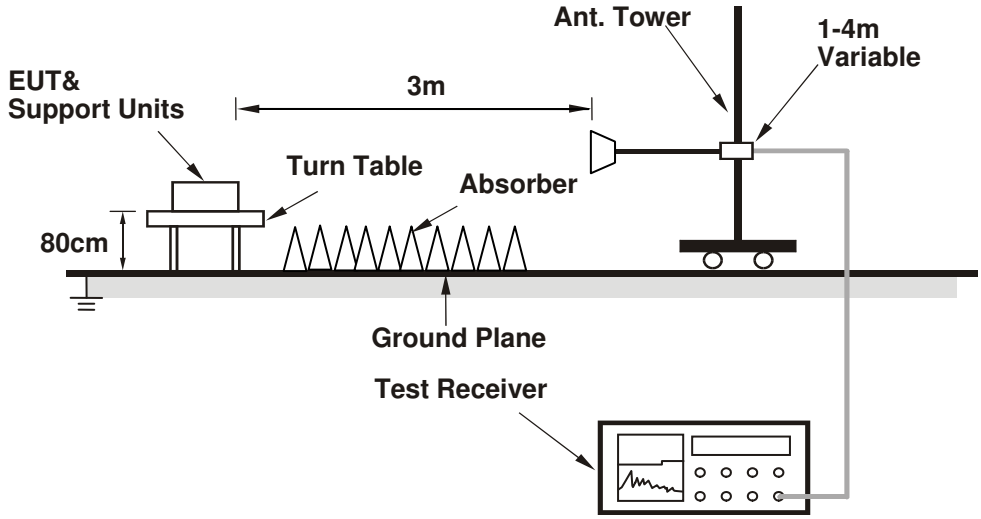
d. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.

Conducted Power Measurement:

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

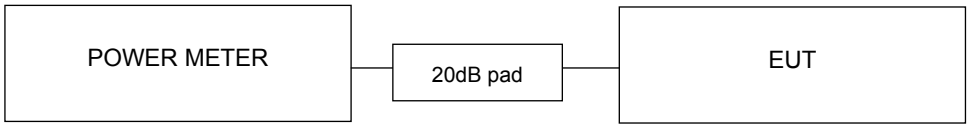
4.1.3 Test Setup

EIRP / ERP Measurement:



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

Conducted Power Measurement:



4.1.4 Test Results

EIRP Power (dBm)

LTE Band 2					
Channel Bandwidth: 5MHz / QPSK					
Channel	**Frequency (MHz)**	**LVL (dBm)**	**Correction Factor(dB)**	**EIRP(dBm)**	**EIRP(mW)**
615	1932.5	20.95	6.93	27.88	613.762
900	1960	21.06	6.92	27.98	628.058
1175	1987.5	21.13	6.90	28.03	635.331

LTE Band 2					
Channel Bandwidth: 10MHz / QPSK					
Channel	**Frequency (MHz)**	**LVL (dBm)**	**Correction Factor(dB)**	**EIRP(dBm)**	**EIRP(mW)**
650	1935	20.94	6.93	27.87	612.350
900	1960	20.96	6.92	27.88	613.762
1150	1985	21.04	6.91	27.95	623.735

LTE Band 2					
Channel Bandwidth: 15MHz / QPSK					
Channel	**Frequency (MHz)**	**LVL (dBm)**	**Correction Factor(dB)**	**EIRP(dBm)**	**EIRP(mW)**
675	1937.5	20.93	6.93	27.86	610.942
900	1960	21.00	6.92	27.92	619.441
1125	1982.5	21.05	6.91	27.96	625.173

LTE Band 2					
Channel Bandwidth: 20MHz / QPSK					
Channel	**Frequency (MHz)**	**LVL (dBm)**	**Correction Factor(dB)**	**EIRP(dBm)**	**EIRP(mW)**
700	1940	20.92	6.93	27.85	609.537
900	1960	20.98	6.92	27.90	616.595
1100	1980	21.01	6.91	27.92	619.441

Conducted Output Power (dBm)

Channel	Freq. (MHz)	5MHz / QPSK		
		Conducted Average Power (dBm)		
		Chain0	Chain1	Total
615	1932.5	23.39	23.43	26.42
900	1960	23.41	23.45	26.44
1175	1987.5	23.41	23.38	26.41

Channel	Freq. (MHz)	10MHz / QPSK		
		Conducted Average Power (dBm)		
		Chain0	Chain1	Total
650	1935	24.06	24.11	27.10
900	1960	24.07	24.12	27.11
1150	1985	24.12	24.22	27.18

Channel	Freq. (MHz)	15MHz / QPSK		
		Conducted Average Power (dBm)		
		Chain0	Chain1	Total
675	1937.5	24.05	24.07	27.07
900	1960	24.06	24.13	27.11
1125	1982.5	24.11	24.23	27.18

Channel	Freq. (MHz)	20MHz / QPSK		
		Conducted Average Power (dBm)		
		Chain0	Chain1	Total
700	1940	24.05	24.09	27.08
900	1960	24.07	24.12	27.11
1100	1980	24.13	24.22	27.19

4.2 Frequency Stability Measurement

4.2.1 Limits of Frequency Stabiliity Measurement

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

4.2.2 Test Procedure

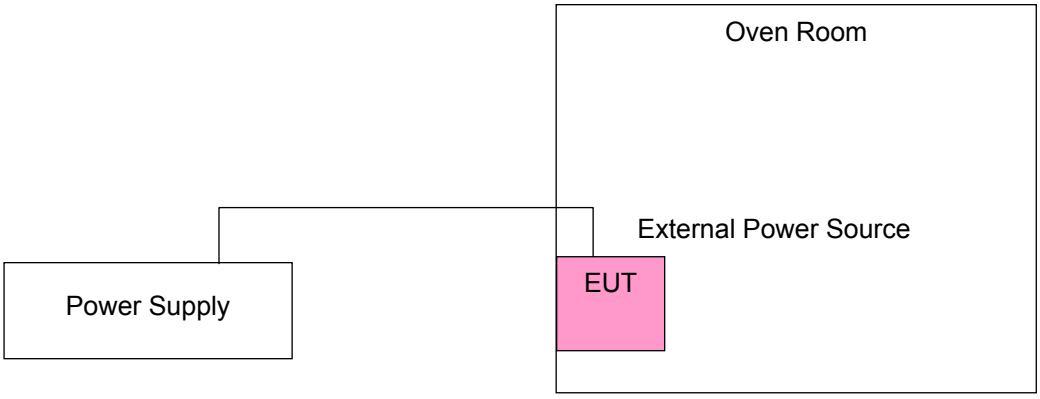
a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.

b. EUT is connected the external power supply to control the DC 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 ℃ 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)
	5MHz	10MHz	15MHz	20MHz	
102	0.002	0.002	0.002	0.001	2.5
138	0.002	0.002	0.002	0.002	2.5

TEMP. (℃)	Frequency Error (ppm)				Limit (ppm)
	5MHz	10MHz	15MHz	20MHz	
75	0.001	0.002	0.002	0.002	2.5
70	0.002	0.001	0.002	0.002	2.5
60	0.001	0.002	0.002	0.002	2.5
50	0.002	0.001	0.002	0.001	2.5
40	0.002	0.001	0.002	0.001	2.5
30	0.002	0.002	0.001	0.001	2.5
20	0.002	0.002	0.002	0.001	2.5
10	0.001	0.001	0.002	0.002	2.5
0	0.002	0.002	0.002	0.001	2.5
-10	0.002	0.002	0.002	0.002	2.5
-20	0.002	0.002	0.002	0.002	2.5
-30	0.002	0.002	0.002	0.001	2.5

4.3 Occupied Bandwidth Measurement

4.3.1 Limits of Emission Bandwidth Measurement

-26dBc Bandwidth
According to FCC 27.53(m)(6) specified that emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26dB below the transmitter power.

Occupied Bandwidth
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.

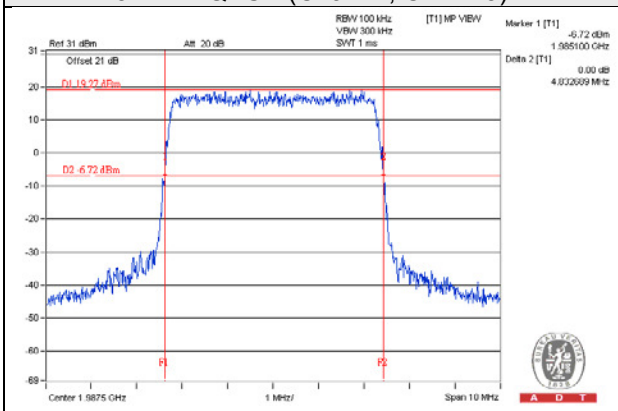
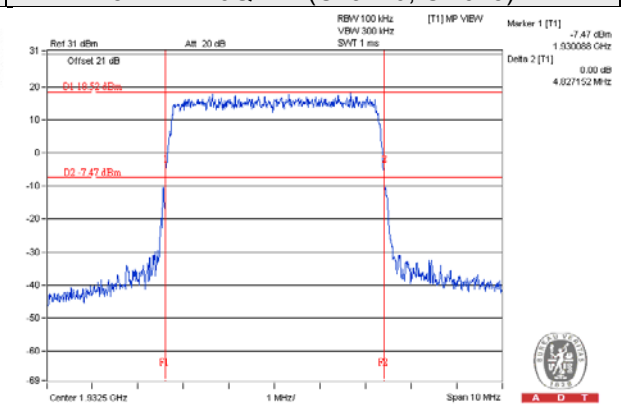
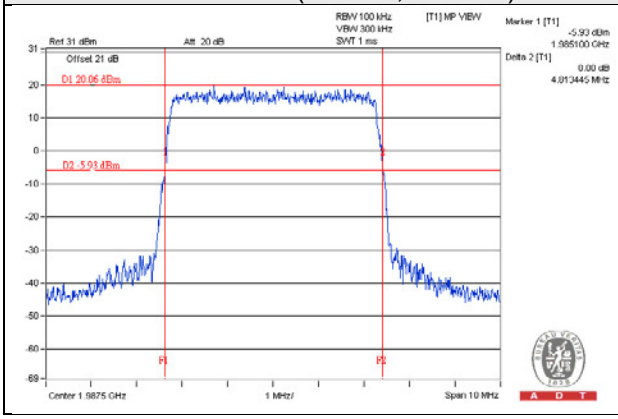
4.3.2 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with RBW = 100kHz and VBW = 300kHz (Channel Bandwidth: 5MHz),RBW = 200kHz and VBW = 620kHz (Channel Bandwidth: 10MHz), RBW = 510kHz and VBW = 1.5MHz (Channel Bandwidth: 15MHz and 20MHz).

4.3.3 Test Setup

4.3.4 Test Result (-26dBc Bandwidth)

Channel Bandwidth: 5MHz							
Channel	Frequency (MHz)	-26dBc Bandwidth (MHz)					
		Chain0			Chain1		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
615	1932.5	4.89	4.83	4.86	4.86	4.84	4.85
900	1960	4.87	4.86	4.90	4.89	4.89	4.89
1175	1987.5	4.91	4.87	4.87	4.83	4.88	4.81

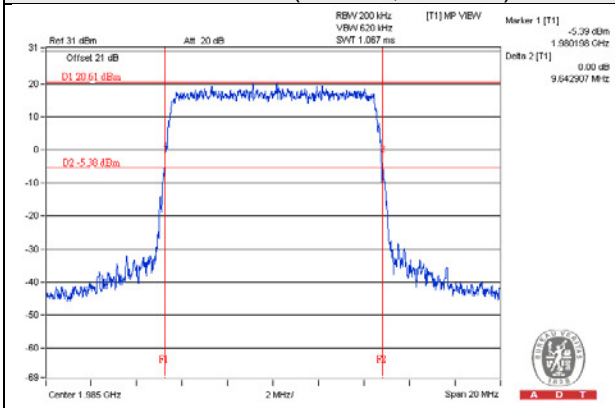
Occupied Bandwidth	
Spectrum Plot of Worst Value	
5MHz / QPSK (Chain 1, CH1175)	5MHz / 16QAM /(Chain 0, CH615)
	
5MHz / 64QAM (Chain 1, CH1175)	
	

Channel Bandwidth: 10MHz							
Channel	Frequency (MHz)	-26dBc Bandwidth (MHz)					
		Chain0			Chain1		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
650	1935	9.76	9.77	9.75	9.77	9.79	9.82
900	1960	9.74	9.72	9.63	9.72	9.68	9.71
1150	1985	9.64	9.68	9.81	9.73	9.71	9.69

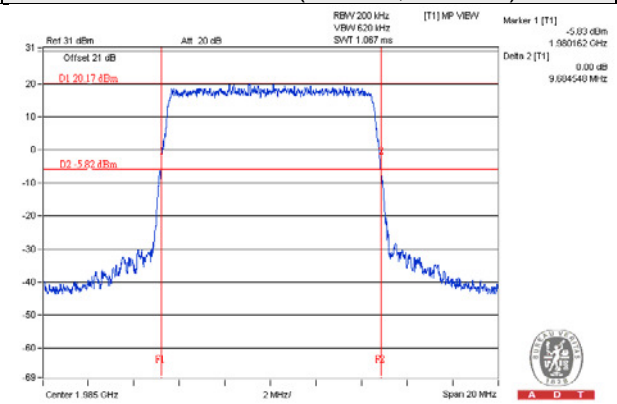
Occupied Bandwidth

Spectrum Plot of Worst Value

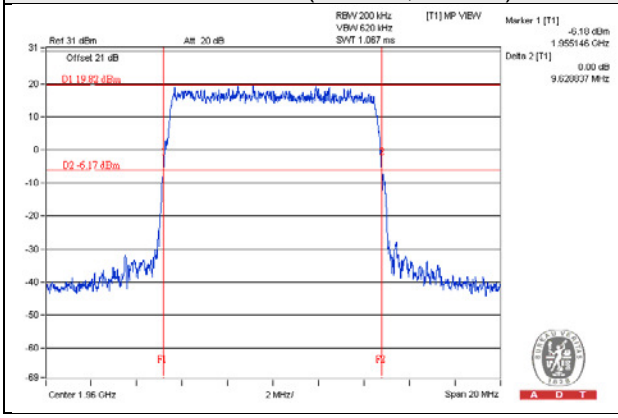
10MHz / QPSK(Chain 0, CH1150)



10MHz / 16QAM(Chain 0, CH1150)



10MHz / 64QAM(Chain 0, CH900)

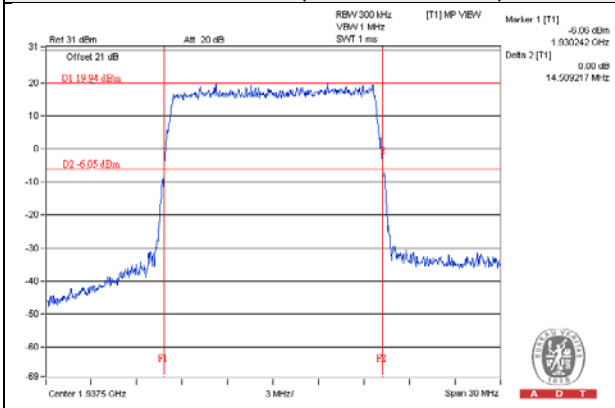


Channel Bandwidth: 15MHz							
Channel	Frequency (MHz)	-26dBc Bandwidth (MHz)					
		Chain0			Chain1		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
675	1937.5	14.60	14.45	14.99	14.50	14.57	14.97
900	1960	14.53	14.55	14.91	14.55	14.61	15.01
1125	1982.5	14.56	14.65	14.97	14.61	14.56	14.54

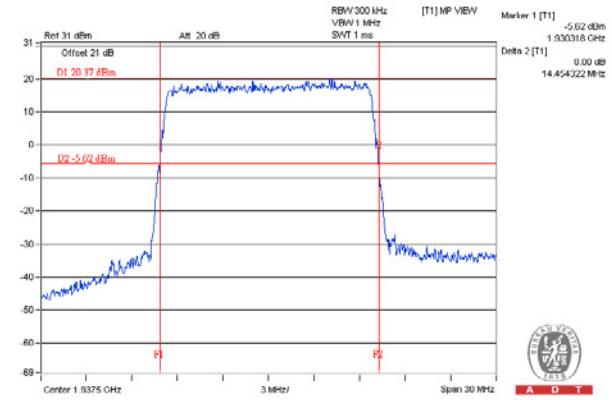
Occupied Bandwidth

Spectrum Plot of Worst Value

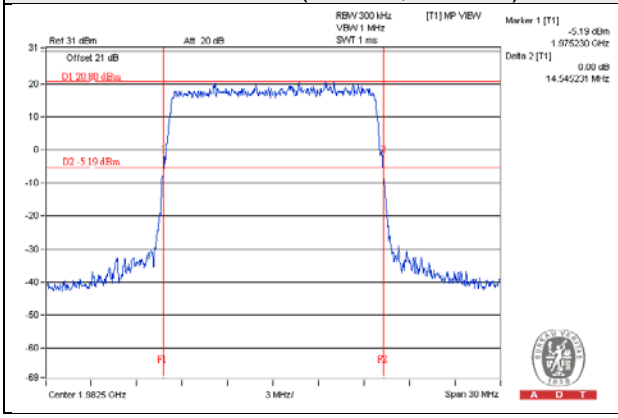
15MHz / QPSK(Chain 1, CH675)



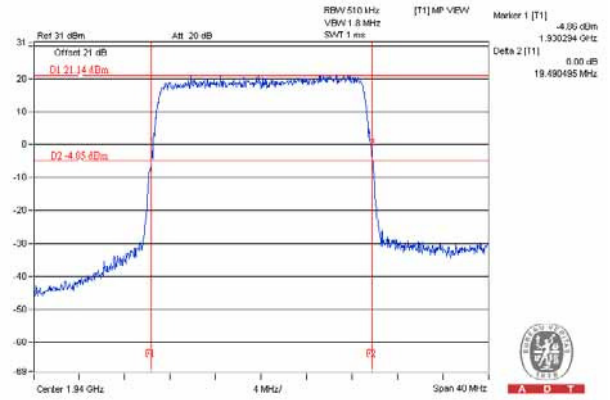
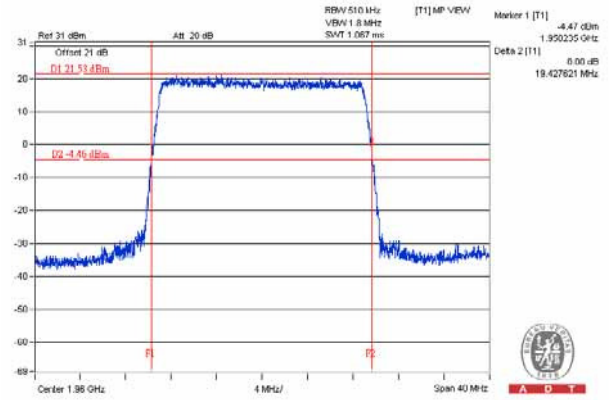
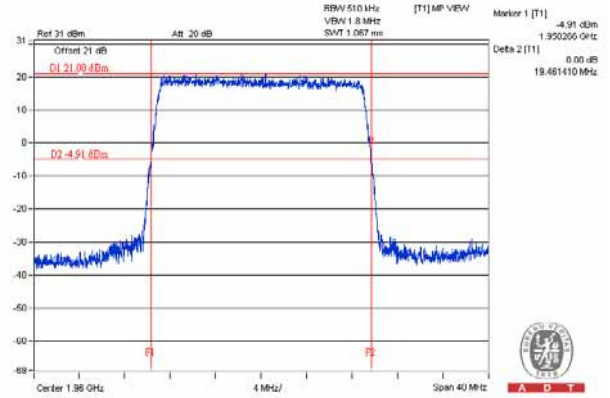
15MHz / 16QAM(Chain 0, CH675)



15MHz / 64QAM(Chain 1, CH1125)

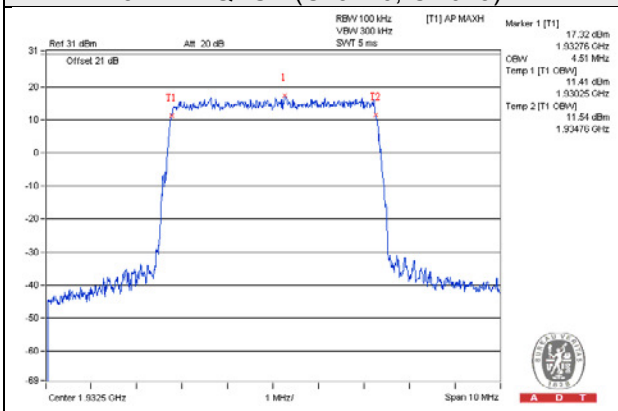
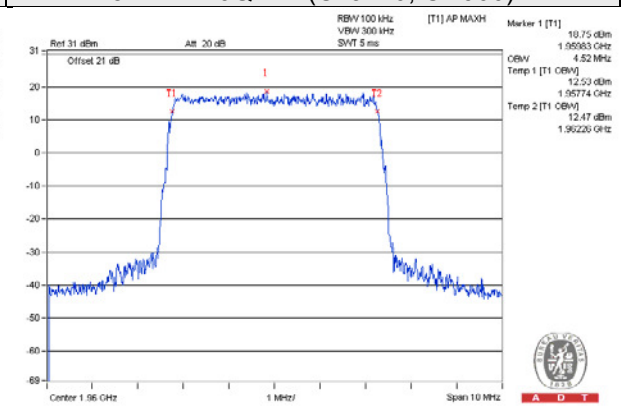
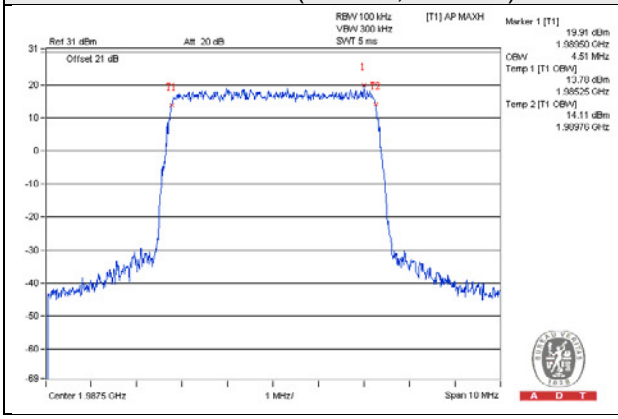


Channel Bandwidth: 20MHz							
Channel	Frequency (MHz)	-26dBc Bandwidth (MHz)					
		Chain0			Chain1		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
700	1940	19.54	19.48	19.68	19.49	19.53	19.47
900	1960	19.51	19.42	19.46	19.55	19.52	19.46
1100	1980	19.60	19.57	19.61	19.49	19.53	19.56

Occupied Bandwidth	
Spectrum Plot of Worst Value	
20MHz / QPSK(Chain 1, CH700)	20MHz / 16QAM(Chain 0, CH900)
	
20MHz / 64QAM(Chain 0, CH900)	
	

4.3.5 Test Result (Occupied Bandwidth)

Channel Bandwidth: 5MHz							
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)					
		Chain0			Chain1		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
615	1932.5	4.51	4.49	4.50	4.49	4.50	4.51
900	1960	4.49	4.52	4.49	4.49	4.50	4.50
1175	1987.5	4.48	4.50	4.51	4.50	4.51	4.50

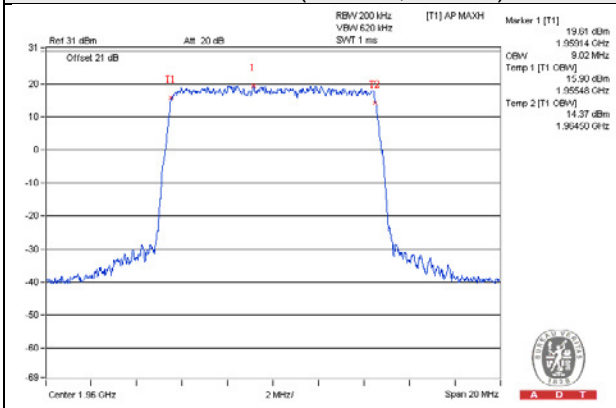
Occupied Bandwidth	
Spectrum Plot of Worst Value	
5MHz / QPSK (Chain 0, CH615)	5MHz / 16QAM /(Chain 0, CH900)
	
5MHz / 64QAM (Chain 0, CH1175)	
	

Channel Bandwidth: 10MHz							
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)					
		Chain0			Chain1		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
650	1935	8.98	8.98	9.00	8.98	9.00	9.00
900	1960	9.02	9.02	9.02	9.00	9.02	9.04
1150	1985	9.02	9.00	9.02	9.00	9.00	9.02

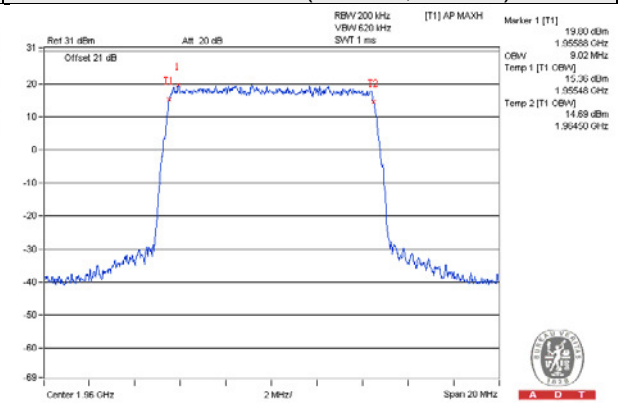
Occupied Bandwidth

Spectrum Plot of Worst Value

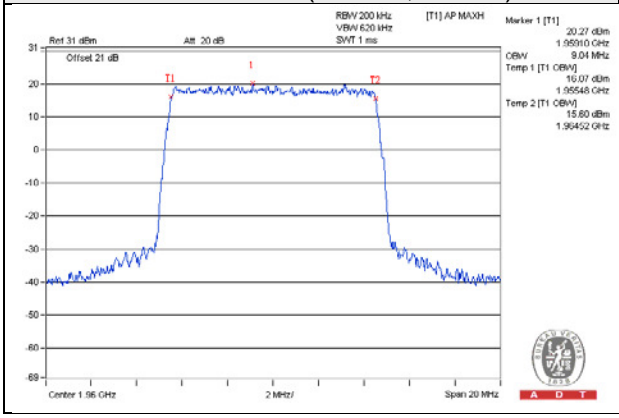
10MHz / QPSK(Chain 0, CH900)



10MHz / 16QAM(Chain 0, CH900)



10MHz / 64QAM(Chain 1, CH900)

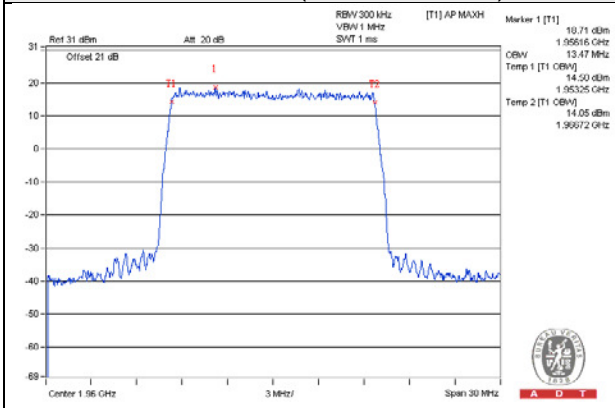


Channel Bandwidth: 15MHz							
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)					
		Chain0			Chain1		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
675	1937.5	13.44	13.44	13.47	13.44	13.47	13.47
900	1960	13.47	13.44	13.47	13.44	13.47	13.47
1125	1982.5	13.44	13.44	13.41	13.47	13.47	13.44

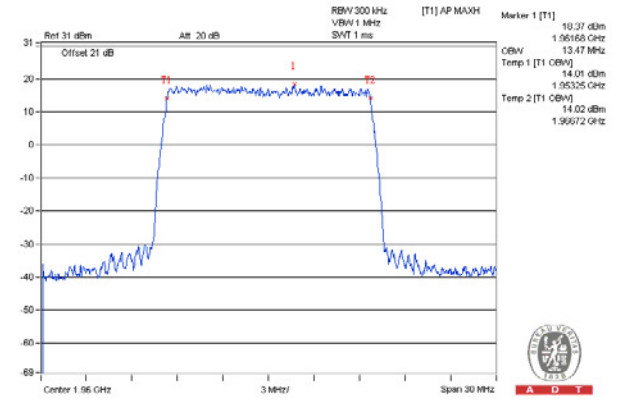
Occupied Bandwidth

Spectrum Plot of Worst Value

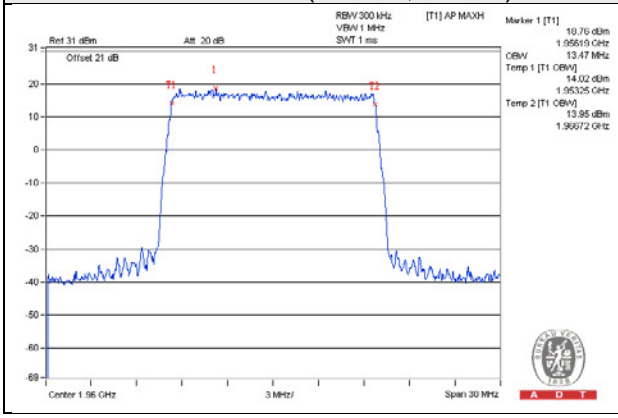
15MHz / QPSK(Chain 0, CH900)



15MHz / 16QAM(Chain 1, CH900)



15MHz / 64QAM(Chain 0, CH900)

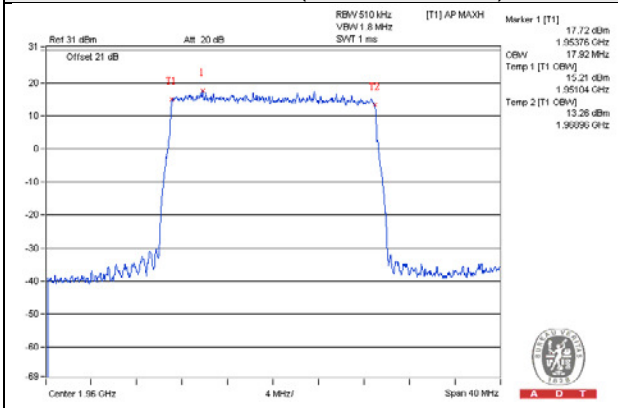


Channel Bandwidth: 20MHz							
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)					
		Chain0			Chain1		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
700	1940	17.88	17.88	17.88	17.88	17.88	17.88
900	1960	17.88	17.88	17.88	17.92	17.88	17.88
1100	1980	17.84	17.88	17.84	17.92	17.88	17.92

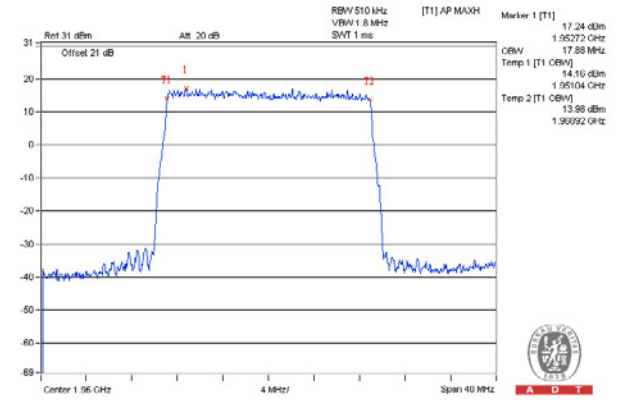
Occupied Bandwidth

Spectrum Plot of Worst Value

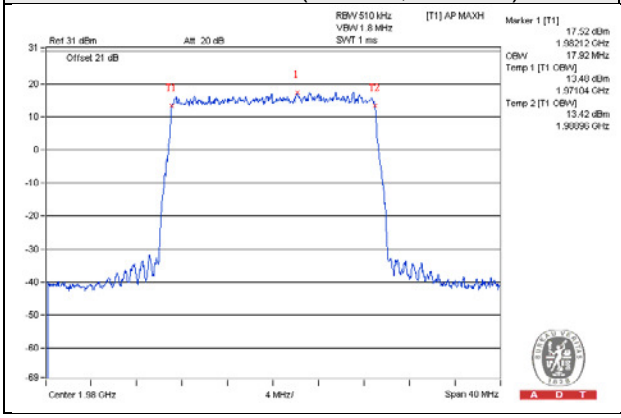
20MHz / QPSK(Chain 1, CH900)



20MHz / 16QAM(Chain 1, CH900)



20MHz / 64QAM(Chain 1, CH1100)



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.

Note:

This device can be impelement MIMO function, so the limit of spurious emissions needs to be reduced by 10log($Numbers_{Ant}$) according to FCC KDB 662911 D01 guidance.

{The limit is adjusted to -13dBm – 10*log(2) = -16.01dBm.}

4.4.2 Test Setup

4.4.3 Test Procedures

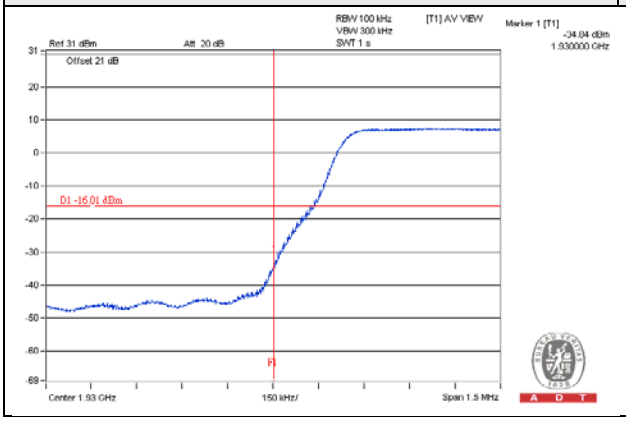
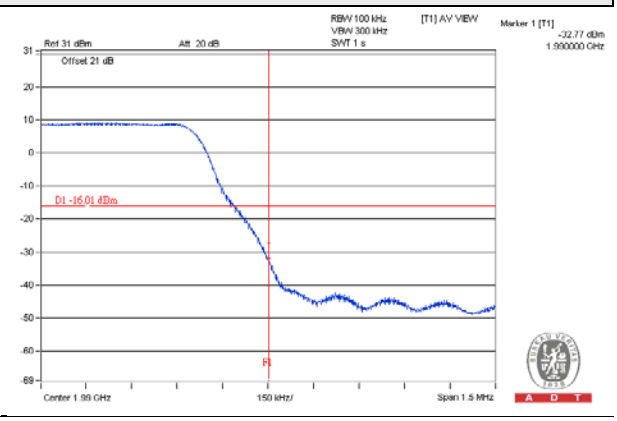
a. The EUT was set up for the rated peak power. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels: low, middle and high operational frequency range.

b. The center frequency of spectrum is the band edge frequency and span is 15MHz. RBW of the spectrum is 100kHz (Channel Bandwidth: 5MHz)/ 200kHz (Channel Bandwidth: 10MHz) / 300kHz (Channel Bandwidth: 15MHz) / 510kHz (Channel Bandwidth: 20MHz).

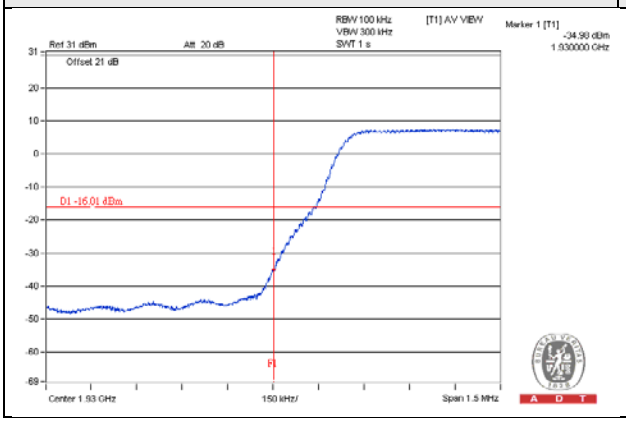
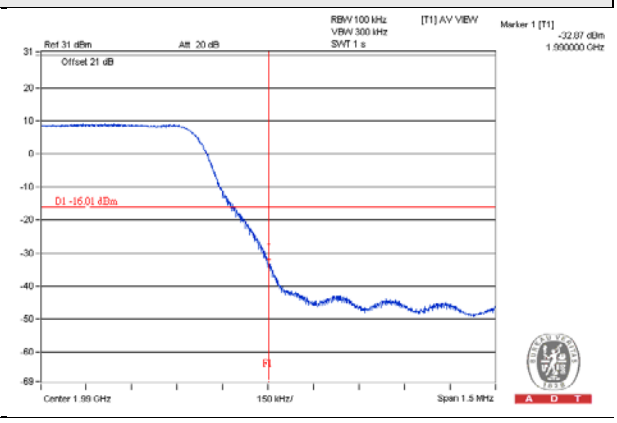
c. Record the max trace plot into the test report.

4.4.4 Test Results

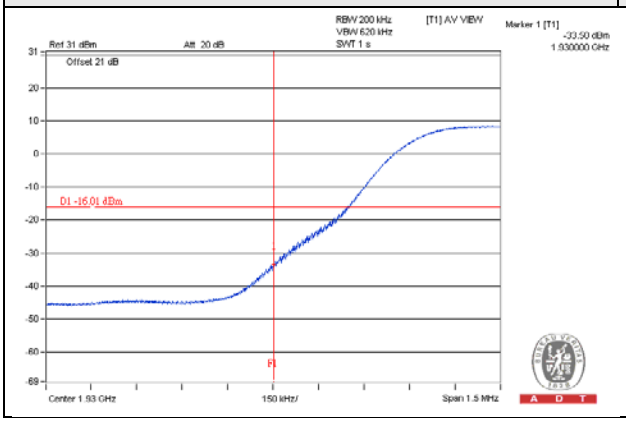
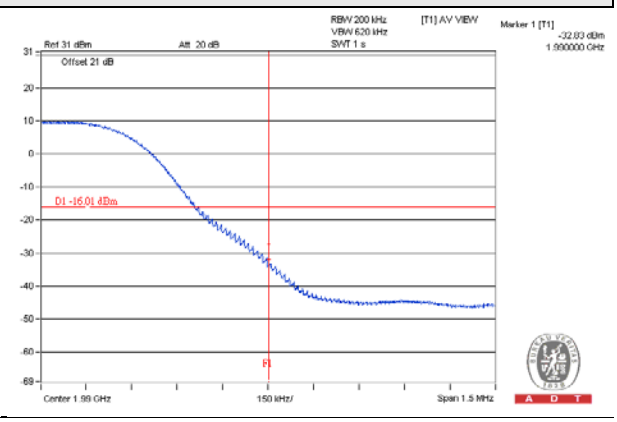
Chain 0				
QPSK / Channel Bandwidth: 5MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
1932.5	-34.84	-16.01	-18.83	Pass
1987.5	-32.77	-16.01	-16.76	Pass

Ch615	Ch1175
	

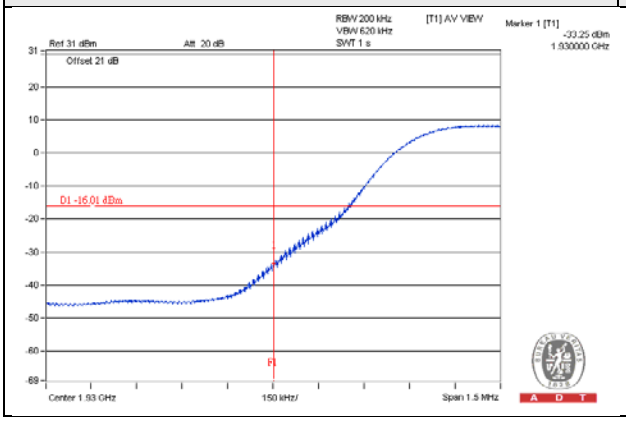
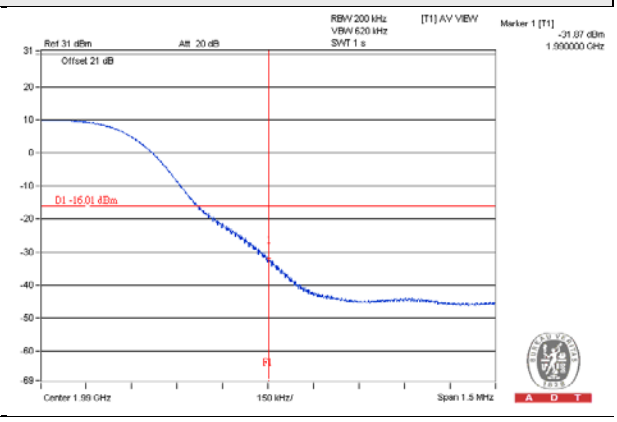
Chain 1				
QPSK / Channel Bandwidth: 5MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
1932.5	-34.98	-16.01	-18.97	Pass
1987.5	-32.87	-16.01	-16.86	Pass

Ch615	Ch1175
	

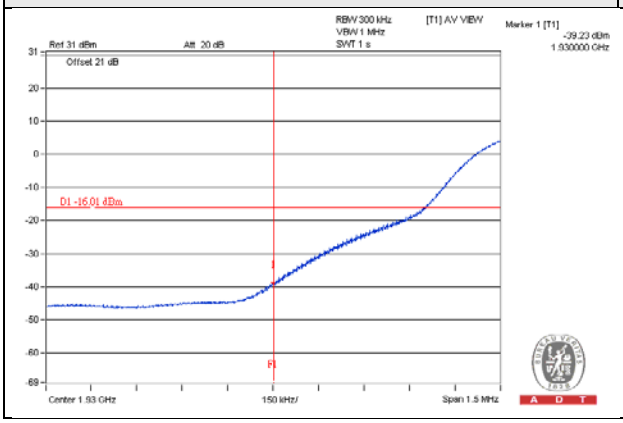
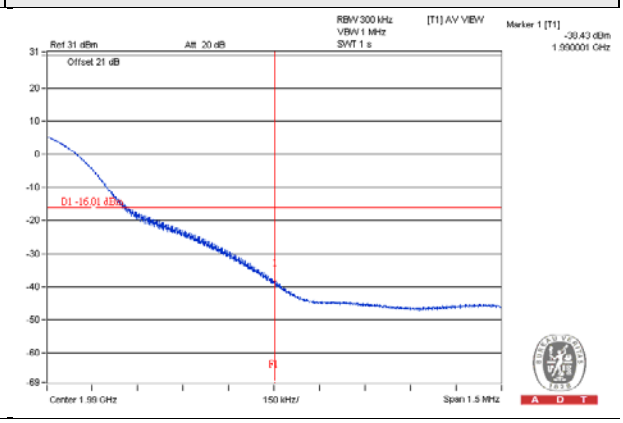
Chain 0				
QPSK / Channel Bandwidth: 10MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
1935	-33.5	-16.01	-17.49	Pass
1985	-32.83	-16.01	-16.82	Pass

Ch650	Ch1150
	

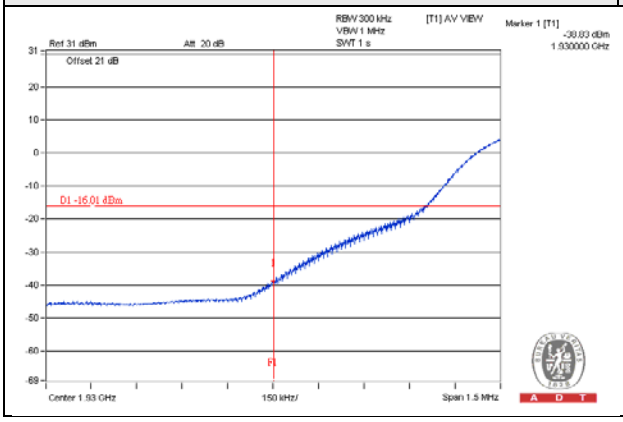
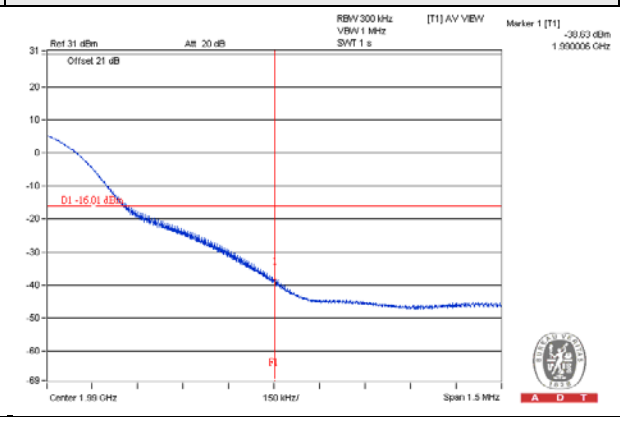
Chain 1				
QPSK / Channel Bandwidth: 10MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
1935	-33.25	-16.01	-17.24	Pass
1985	-31.87	-16.01	-15.86	Pass

Ch650	Ch1150
	

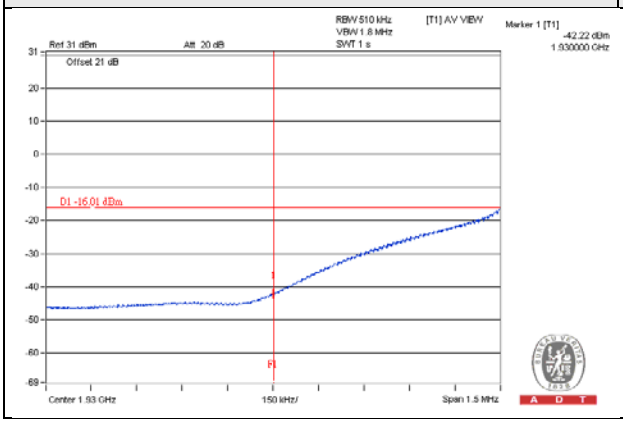
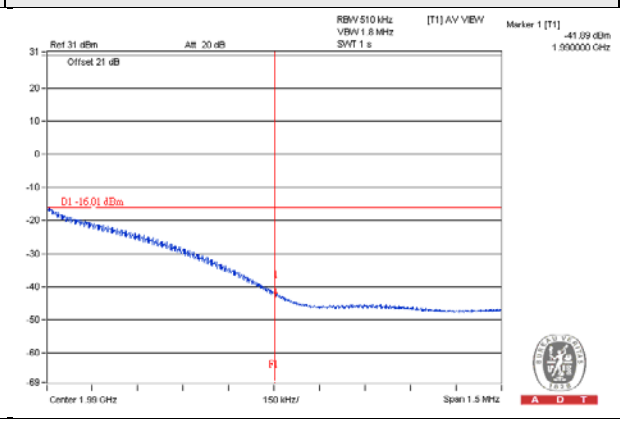
Chain 0				
QPSK / Channel Bandwidth: 15MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
1937.5	-39.23	-16.01	-23.22	Pass
1982.5	-38.43	-16.01	-22.42	Pass

Ch675	Ch1125
	

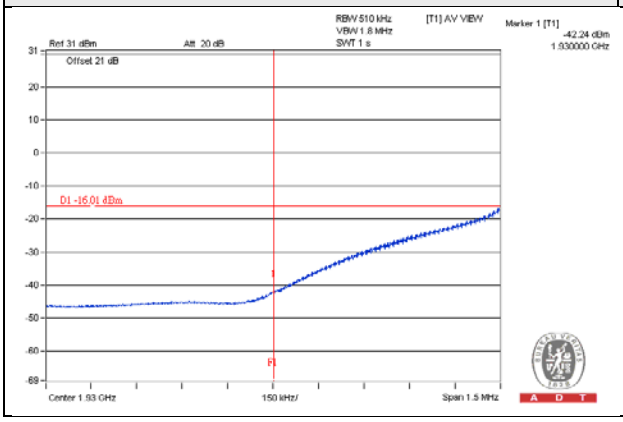
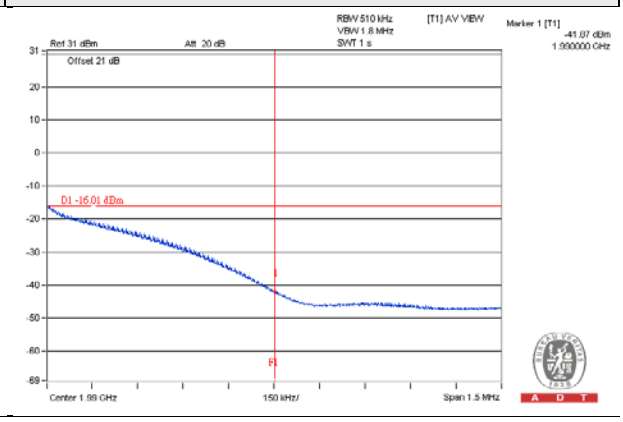
Chain 1				
QPSK / Channel Bandwidth: 15MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
1937.5	-38.83	-16.01	-22.82	Pass
1982.5	-38.63	-16.01	-22.62	Pass

Ch675	Ch1125
	

Chain 0				
QPSK / Channel Bandwidth: 20MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
1940	-42.22	-16.01	-26.21	Pass
1980	-41.89	-16.01	-25.88	Pass

Ch700	Ch1100
	

Chain 1				
QPSK / Channel Bandwidth: 20MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
1940	-42.24	-16.01	-26.23	Pass
1980	-41.87	-16.01	-25.86	Pass

Ch700	Ch1100
	

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 ≥ 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%.

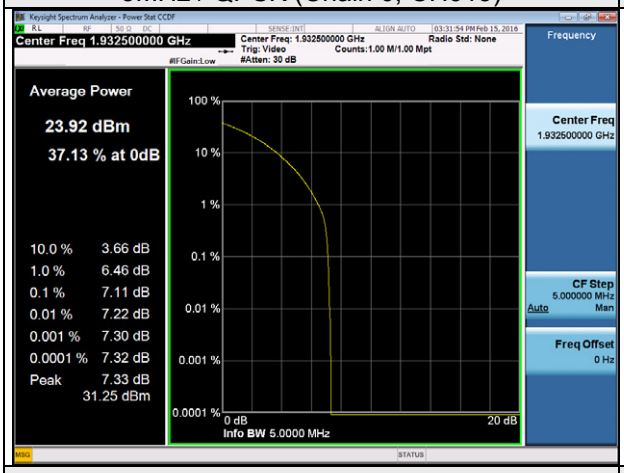
4.5.4 Test Results

Channel Bandwidth: 5MHz							
Channel	Frequency (MHz)	Peak To Average Ratio (dB)					
		Chain0			Chain1		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
615	1932.5	7.11	7.10	7.09	7.10	7.09	7.10
900	1960	7.08	7.07	7.09	7.08	7.08	7.09
1175	1987.5	7.07	7.08	7.09	7.08	7.07	7.08

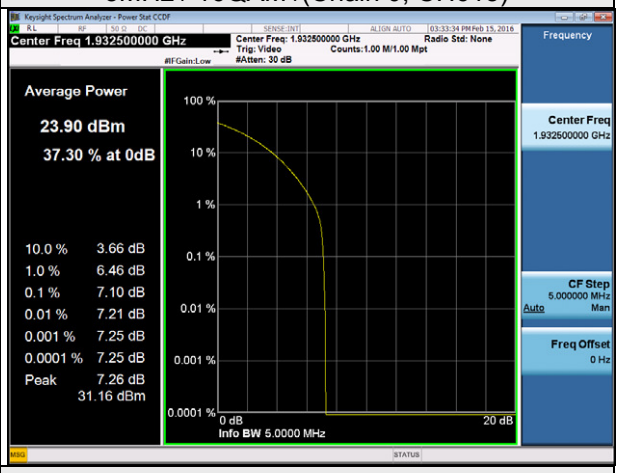
SPECTRUM PLOT OF WORST VALUE

Peak To Average Ratio (dB)

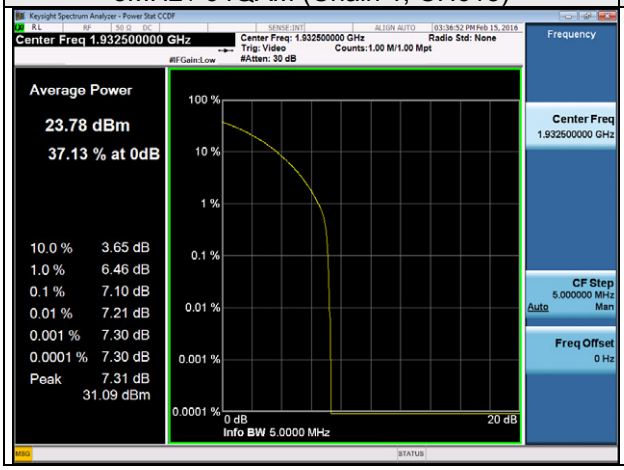
5MHz / QPSK (Chain 0, CH615)



5MHz / 16QAM /(Chain 0, CH615)



5MHz / 64QAM (Chain 1, CH615)

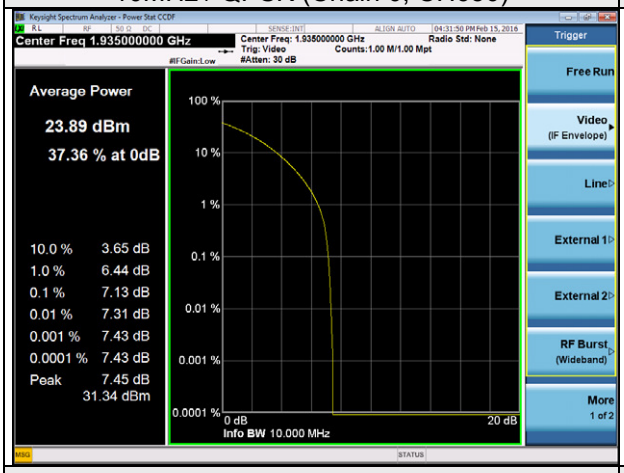


Channel Bandwidth: 10MHz							
Channel	Frequency (MHz)	Peak To Average Ratio (dB)					
		Chain0			Chain1		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
650	1935	7.13	7.15	7.13	7.11	7.15	7.15
900	1960	7.09	7.09	7.08	7.09	7.09	7.09
1150	1985	7.08	7.08	7.08	7.08	7.08	7.09

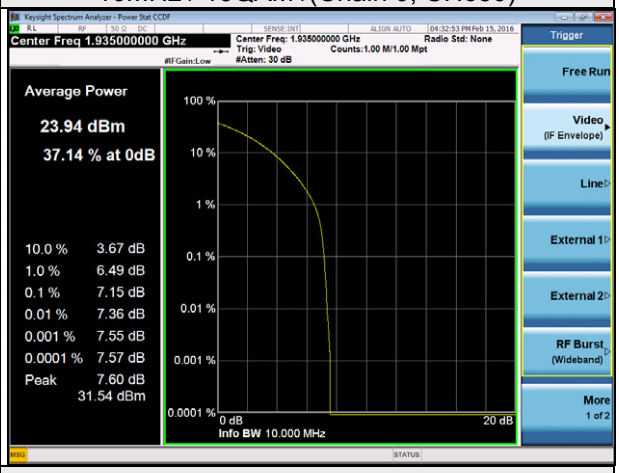
SPECTRUM PLOT OF WORST VALUE

Peak To Average Ratio (dB)

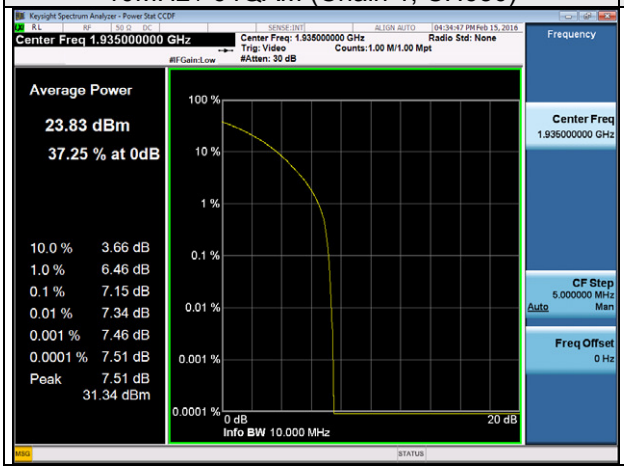
10MHz / QPSK (Chain 0, CH650)



10MHz / 16QAM /(Chain 0, CH650)



10MHz / 64QAM (Chain 1, CH650)

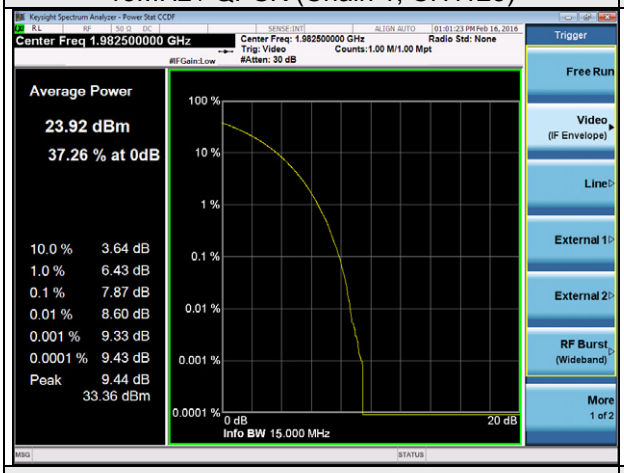


Channel Bandwidth: 15MHz							
Channel	Frequency (MHz)	Peak To Average Ratio (dB)					
		Chain0			Chain1		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
675	1937.5	7.82	7.82	7.82	7.84	7.81	7.83
900	1960	7.82	7.84	7.82	7.84	7.82	7.81
1125	1982.5	7.82	7.82	7.86	7.87	7.88	7.85

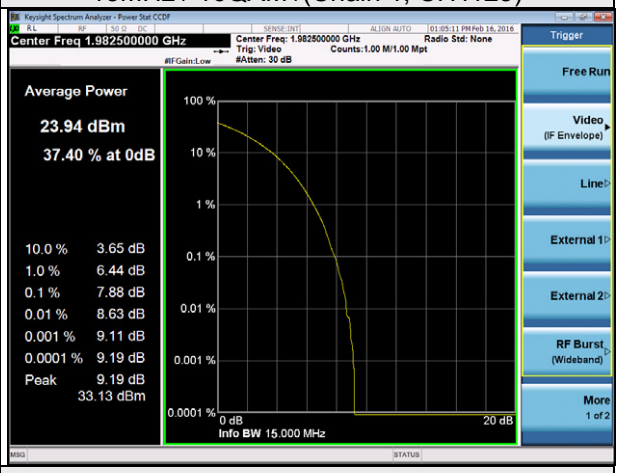
SPECTRUM PLOT OF WORST VALUE

Peak To Average Ratio (dB)

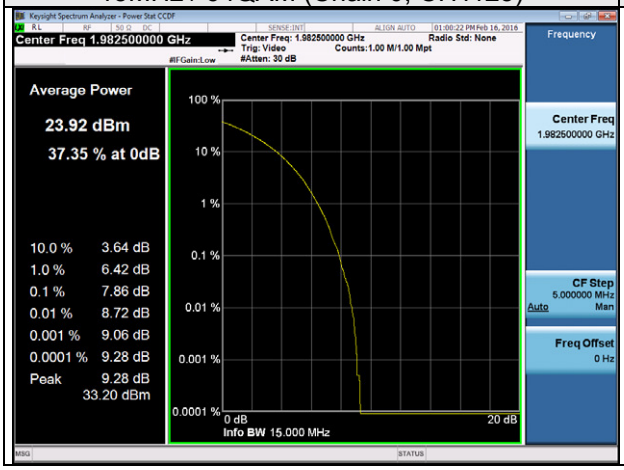
15MHz / QPSK (Chain 1, CH1125)



15MHz / 16QAM /(Chain 1, CH1125)



15MHz / 64QAM (Chain 0, CH1125)

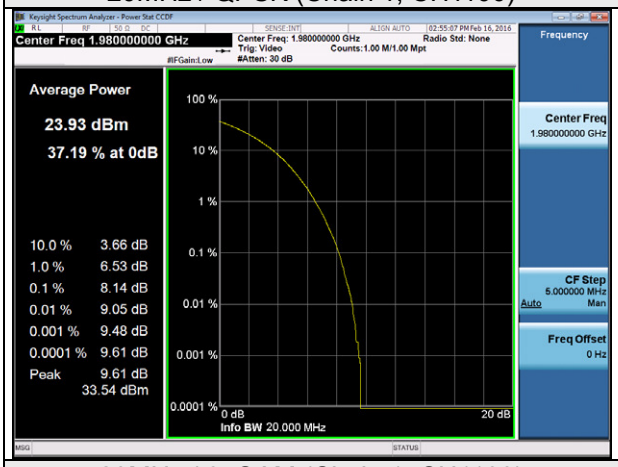


Channel Bandwidth: 20MHz							
Channel	Frequency (MHz)	Peak To Average Ratio (dB)					
		Chain0			Chain1		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
700	1940	8.07	8.13	8.07	8.10	8.10	8.09
900	1960	8.09	8.08	8.09	8.12	8.13	8.04
1100	1980	8.11	8.13	8.11	8.14	8.12	8.12

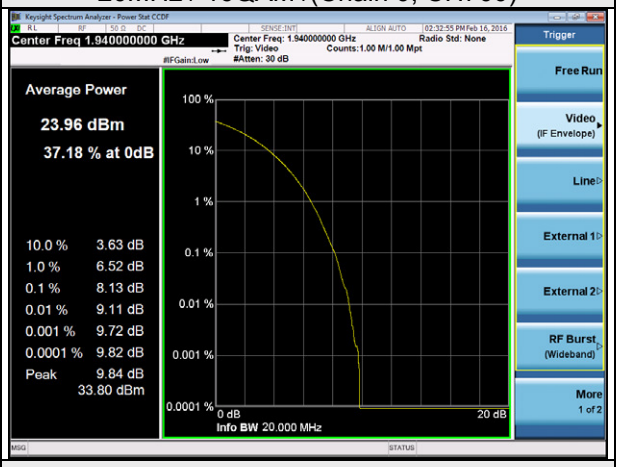
SPECTRUM PLOT OF WORST VALUE

Peak To Average Ratio (dB)

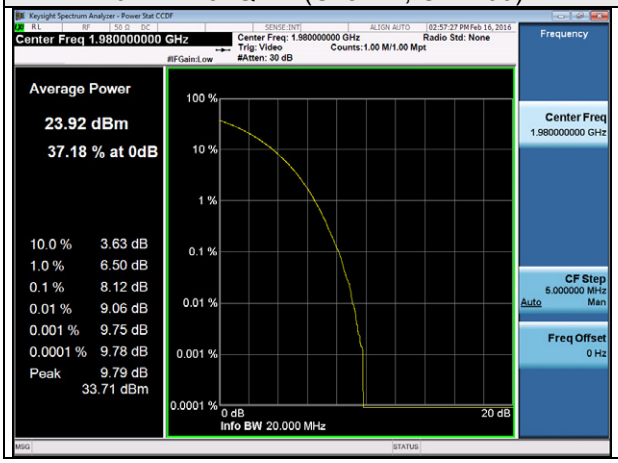
20MHz / QPSK (Chain 1, CH1100)



20MHz / 16QAM /(Chain 0, CH700)



20MHz / 64QAM (Chain 1, CH1100)



4.6 Conducted Spurious Emissions

4.6.1 Limits of Conducted Spurious Emissions Measurement

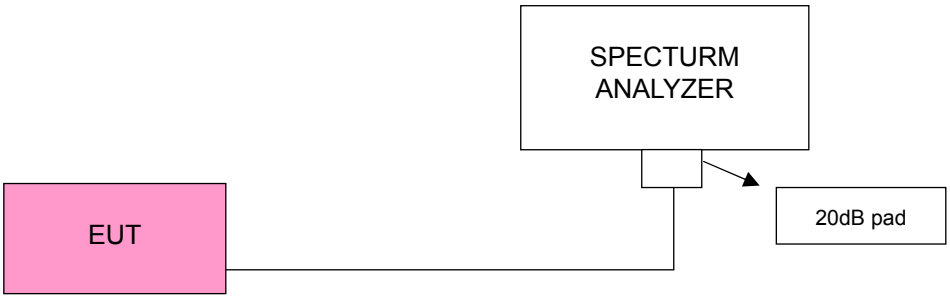
In the FCC 24.238, On any frequency outside a licensee's frequency block, The power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB, the emission limit equal to –13dBm.

Note:

This device can be impelement MIMO function, so the limit of spurious emissions needs to be reduced by 10log($Numbers_{Ant}$) according to FCC KDB 662911 D01 guidance.

{The limit is adjusted to -13dBm – 10*log(2) = -16.01dBm.}

4.6.2 Test Setup



4.6.3 Test Procedure

a. All measurements were done at 3 channels: low, middle and high operational frequency range.

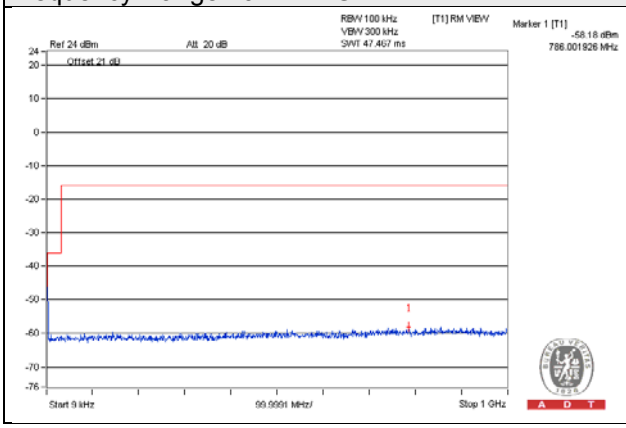
b. When the spectrum scanned from 9kHz to 26.5GHz, it shall be connected to the 20dB pad attenuated the carried frequency.

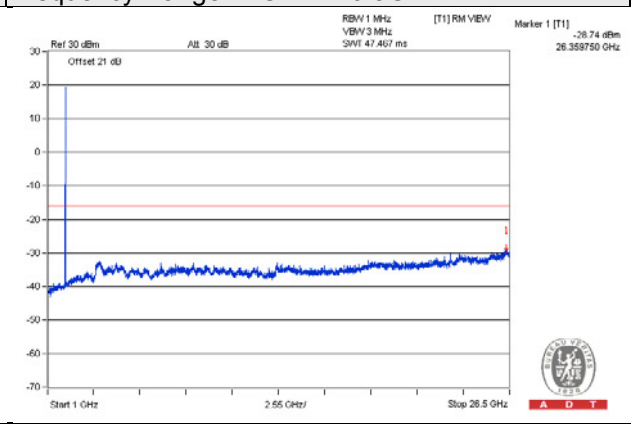
c. Record the max trace plot into the test report.

4.6.4 Test Results

Chain 0				
QPSK / Channel Bandwidth: 5MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
786.00	-58.18	-16.01	-42.17	Pass
26359.75	-28.74	-16.01	-12.73	Pass

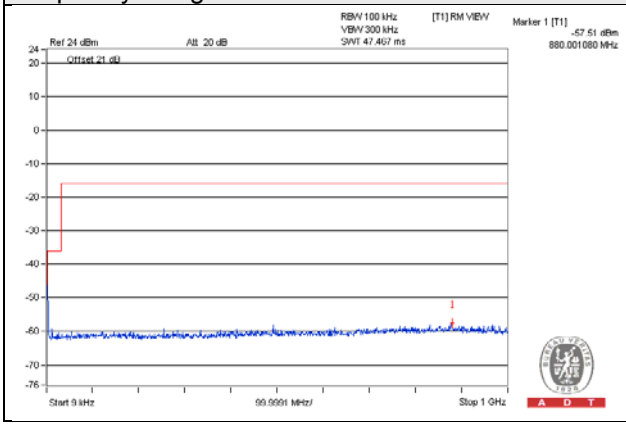
Channel 615	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz ~26.5GHz

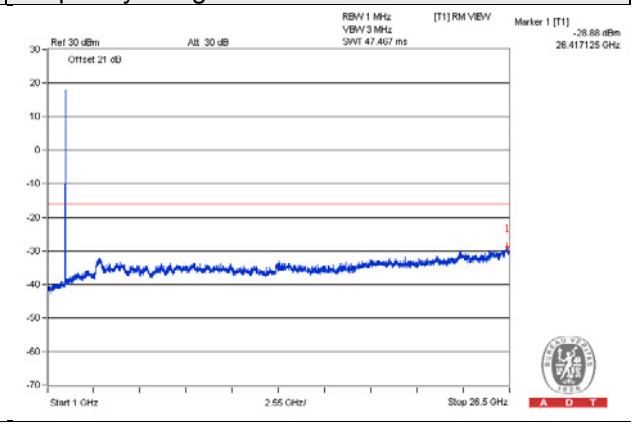




Chain 1				
QPSK / Channel Bandwidth: 5MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
880.00	-57.51	-16.01	-41.50	Pass
26417.13	-28.88	-16.01	-12.87	Pass

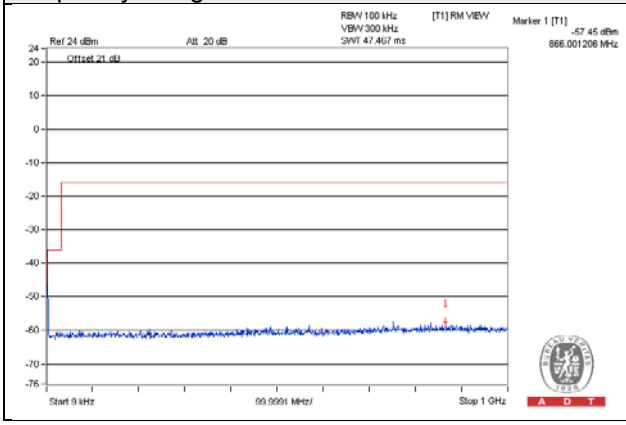
Channel 615	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz ~26.5GHz

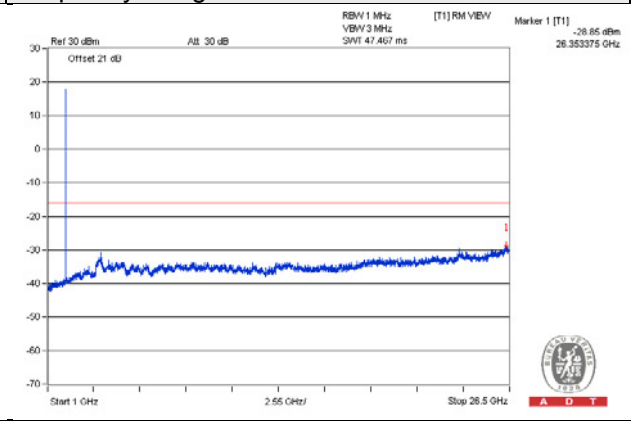




Chain 0				
QPSK / Channel Bandwidth: 5MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
866.00	-57.45	-16.01	-41.44	Pass
26353.38	-28.85	-16.01	-12.84	Pass

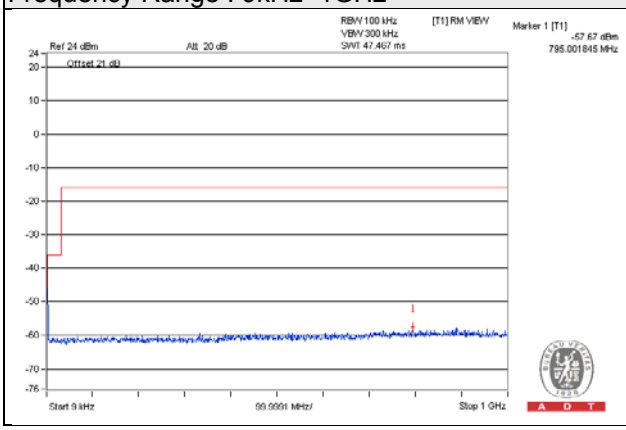
Channel 900	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz ~26.5GHz

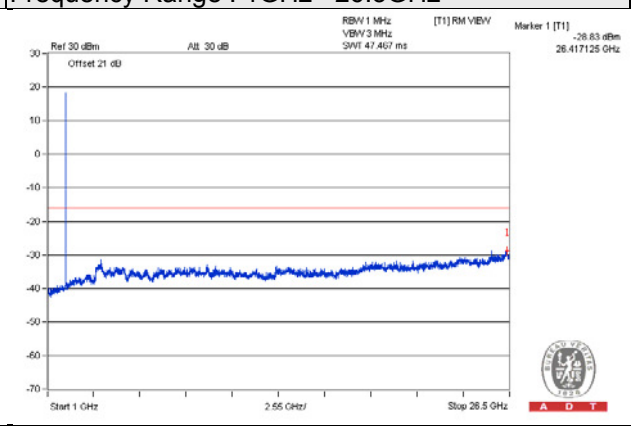




Chain 1				
QPSK / Channel Bandwidth: 5MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
795.00	-57.67	-16.01	-41.66	Pass
26417.13	-28.83	-16.01	-12.82	Pass

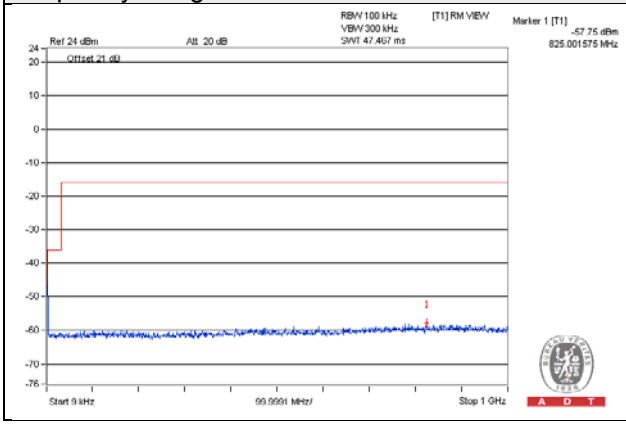
Channel 900	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz ~26.5GHz

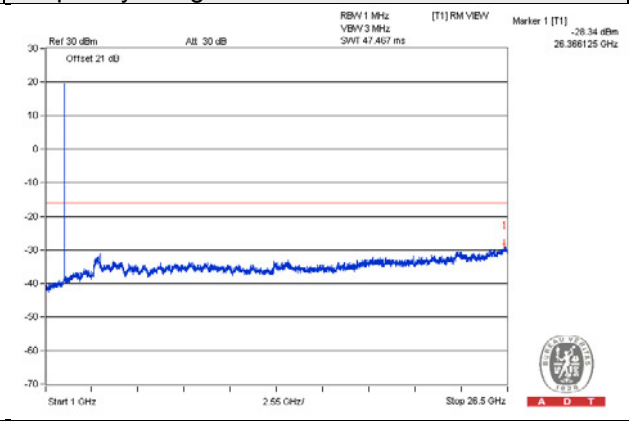




Chain 0				
QPSK / Channel Bandwidth: 5MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
825.00	-57.75	-16.01	-41.74	Pass
26366.13	-28.34	-16.01	-12.33	Pass

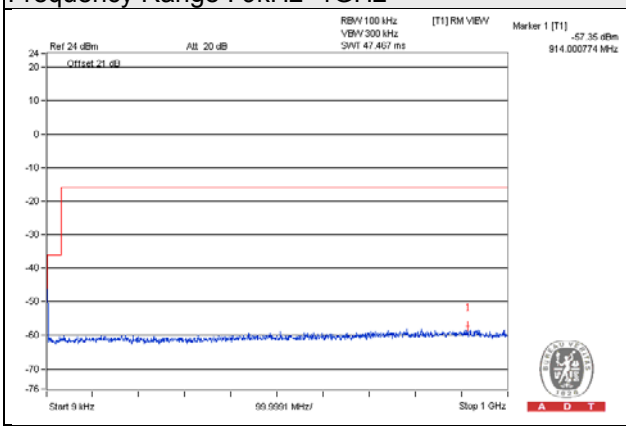
Channel 1175	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz ~26.5GHz

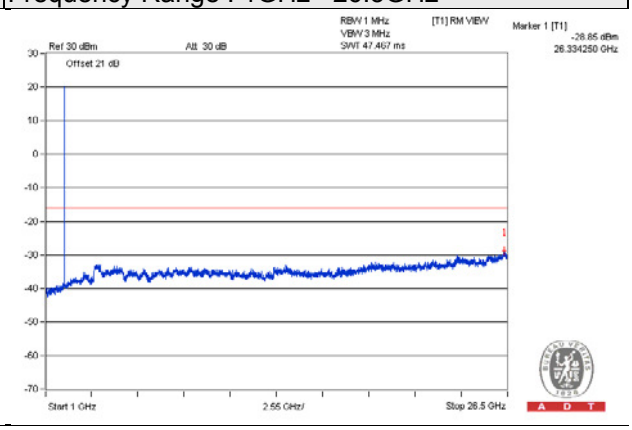




Chain 1				
QPSK / Channel Bandwidth: 5MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
914.00	-57.35	-16.01	-41.34	Pass
26334.25	-28.85	-16.01	-12.84	Pass

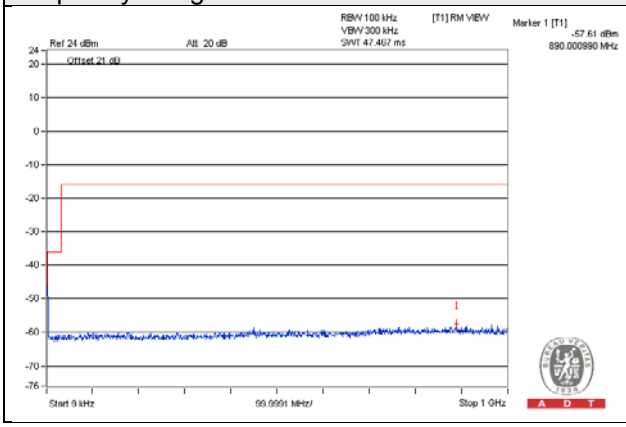
Channel 1175	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz ~26.5GHz

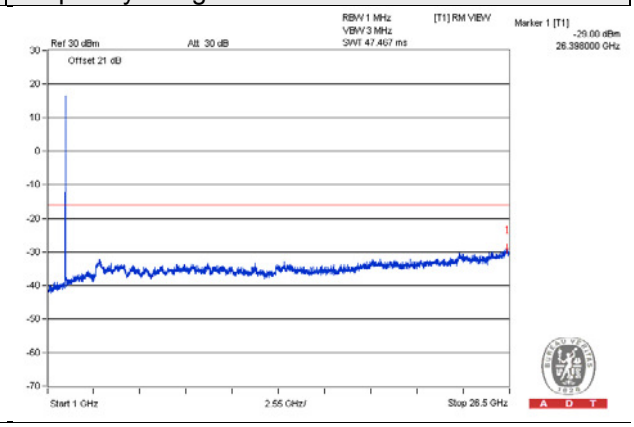




Chain 0				
QPSK / Channel Bandwidth: 10MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
890.00	-57.61	-16.01	-41.60	Pass
26398.00	-29.00	-16.01	-12.99	Pass

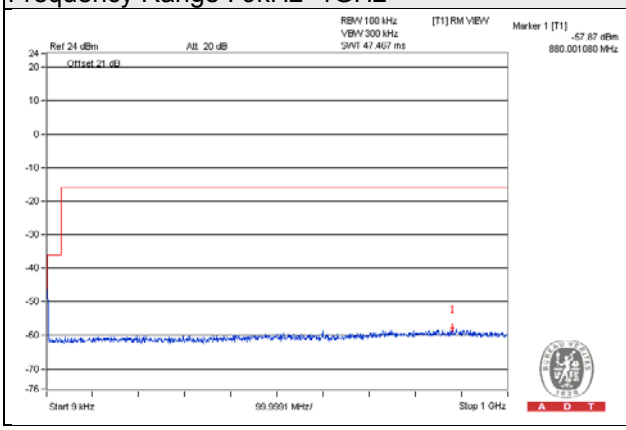
Channel 650	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz ~26.5GHz

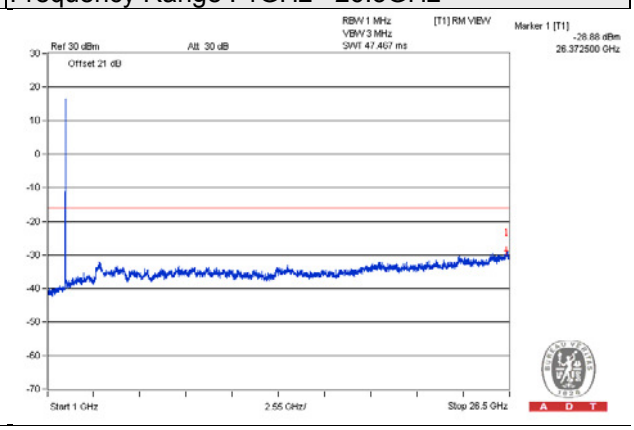




Chain 1				
QPSK / Channel Bandwidth: 10MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
880.00	-57.87	-16.01	-41.86	Pass
26372.50	-28.88	-16.01	-12.87	Pass

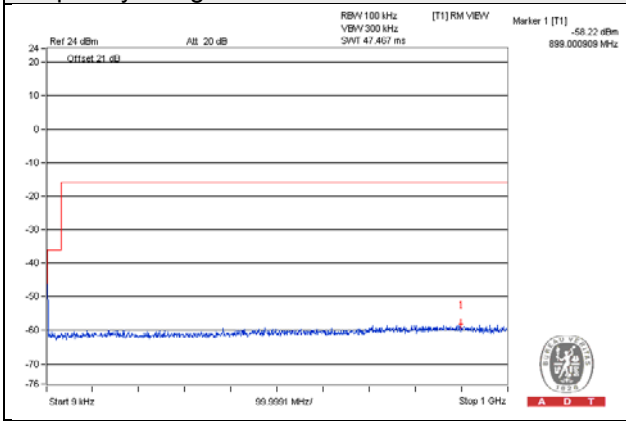
Channel 650	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz ~26.5GHz

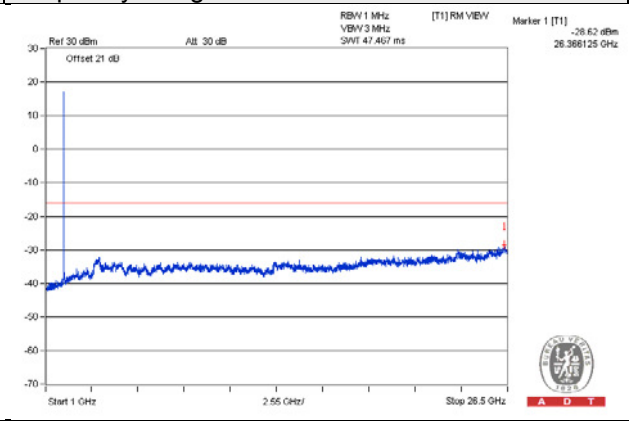




Chain 0				
QPSK / Channel Bandwidth: 10MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
899.00	-58.22	-16.01	-42.21	Pass
26366.13	-28.62	-16.01	-12.61	Pass

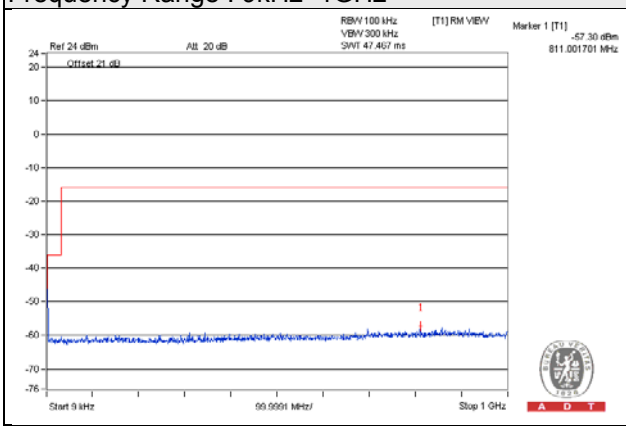
Channel 900	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz ~26.5GHz

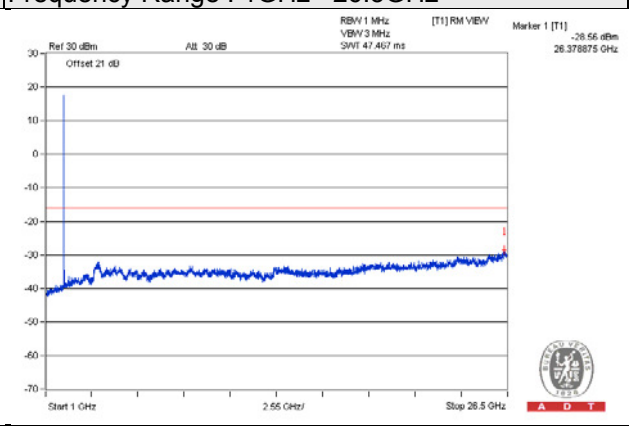




Chain 1				
QPSK / Channel Bandwidth: 10MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
811.00	-57.30	-16.01	-41.29	Pass
26378.88	-28.56	-16.01	-12.55	Pass

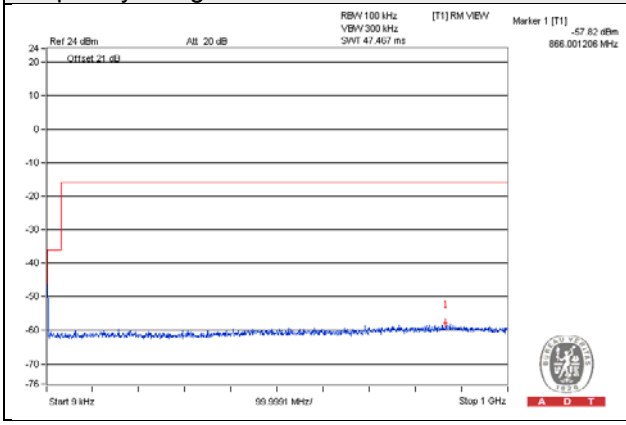
Channel 900	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz ~26.5GHz

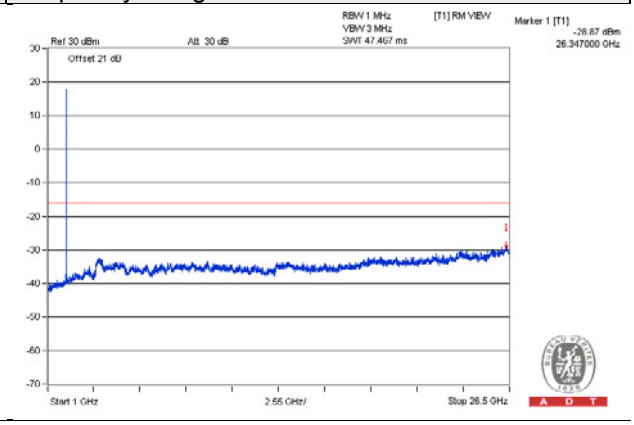




Chain 0				
QPSK / Channel Bandwidth: 10MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
866.00	-57.82	-16.01	-41.81	Pass
26347.00	-28.87	-16.01	-12.86	Pass

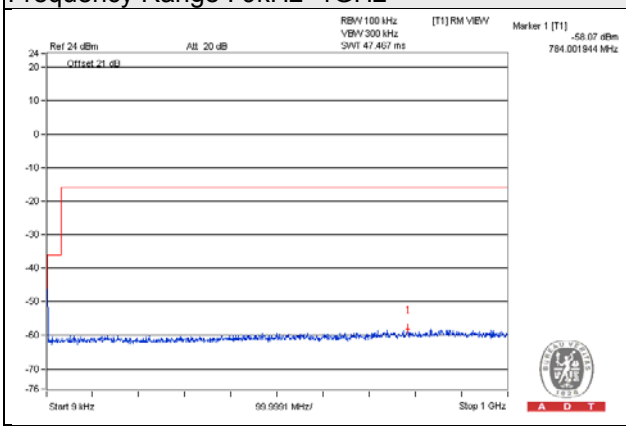
Channel 1150	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz ~26.5GHz

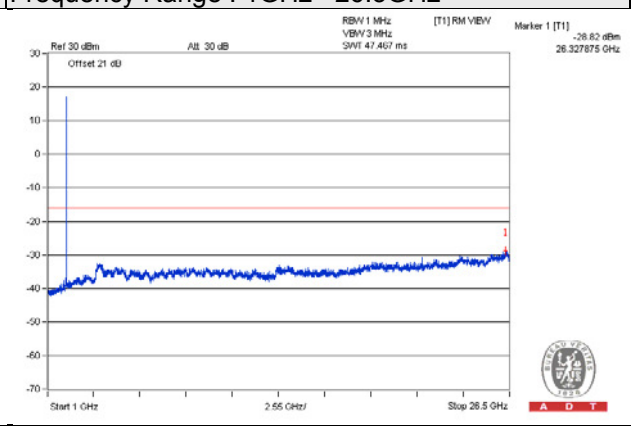




Chain 1				
QPSK / Channel Bandwidth: 10MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
784.00	-58.07	-16.01	-42.06	Pass
26327.88	-28.82	-16.01	-12.81	Pass

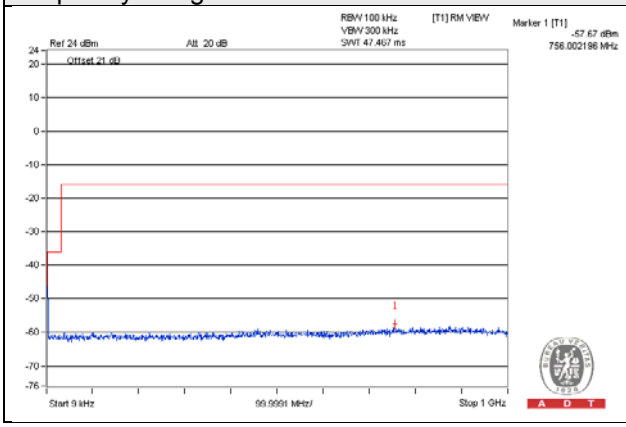
Channel 1150	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz ~26.5GHz

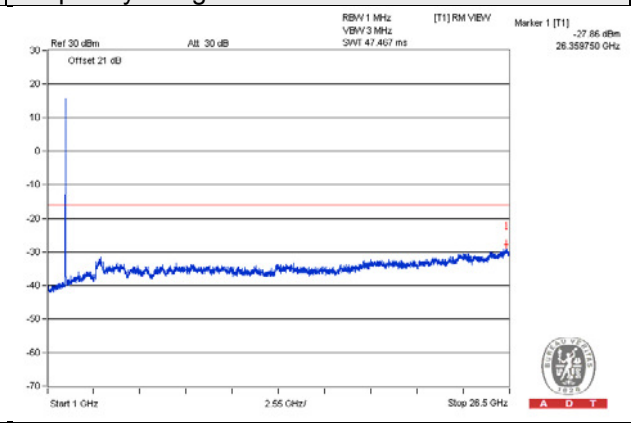




Chain 0				
QPSK / Channel Bandwidth: 15MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
756.00	-57.67	-16.01	-41.66	Pass
26359.75	-27.86	-16.01	-11.85	Pass

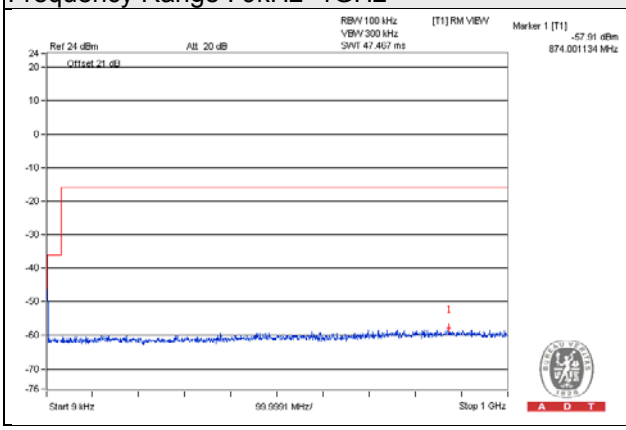
Channel 675	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz ~26.5GHz

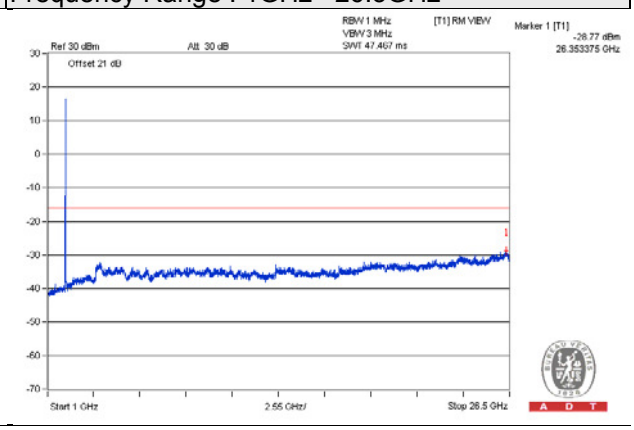




Chain 1				
QPSK / Channel Bandwidth: 15MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
874.00	-57.91	-16.01	-41.90	Pass
26353.38	-28.77	-16.01	-12.76	Pass

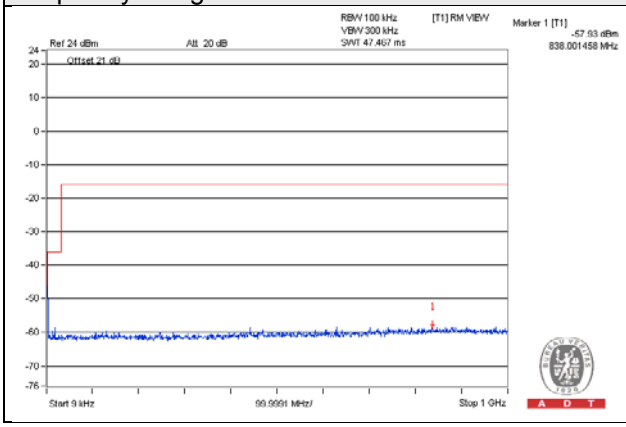
Channel 675	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz ~26.5GHz

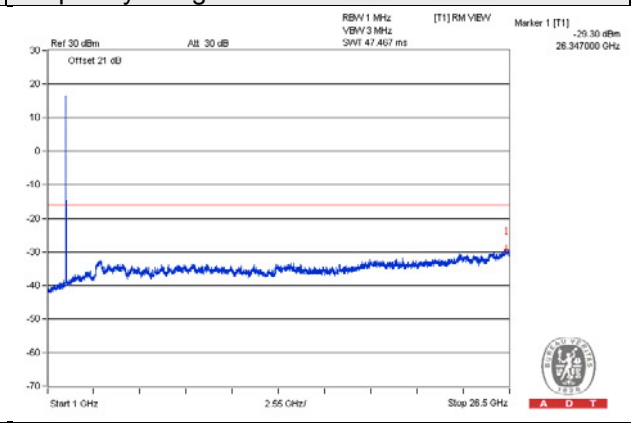




Chain 0				
QPSK / Channel Bandwidth: 15MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
838.00	-57.93	-16.01	-41.92	Pass
26347.00	-29.30	-16.01	-13.29	Pass

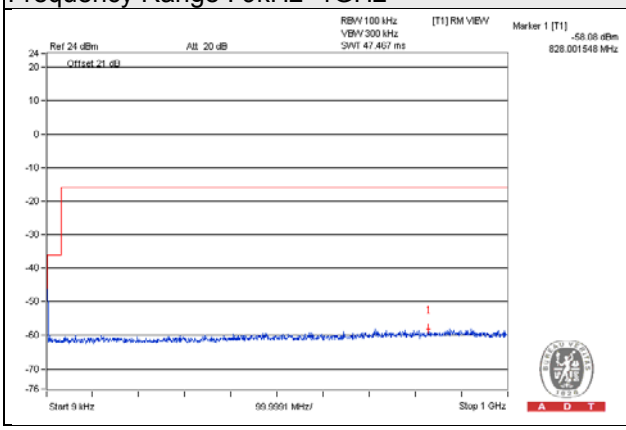
Channel 900	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz ~26.5GHz

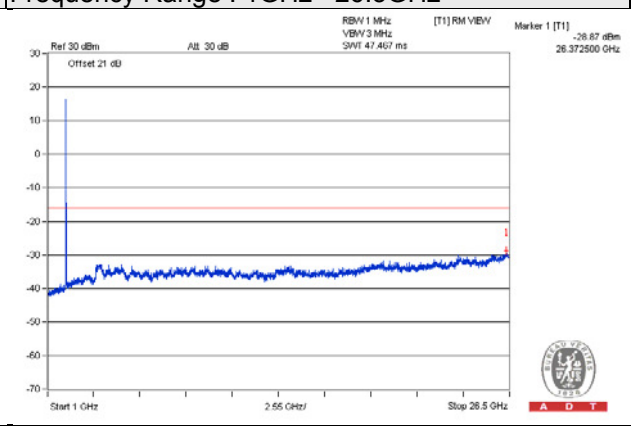




Chain 1				
QPSK / Channel Bandwidth: 15MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
828.001548	-58.08	-16.01	-42.07	Pass
26372.5	-28.87	-16.01	-12.86	Pass

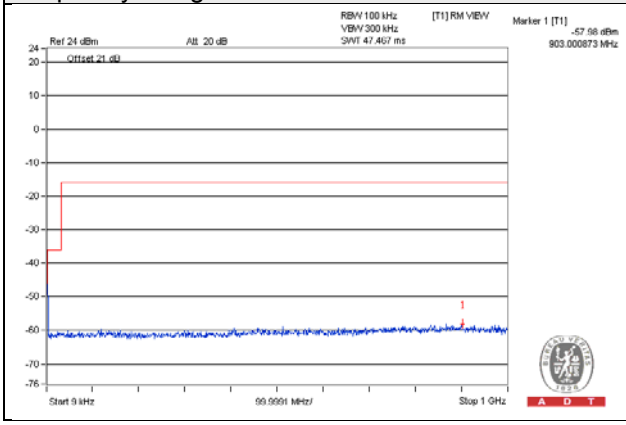
Channel 900	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz ~26.5GHz

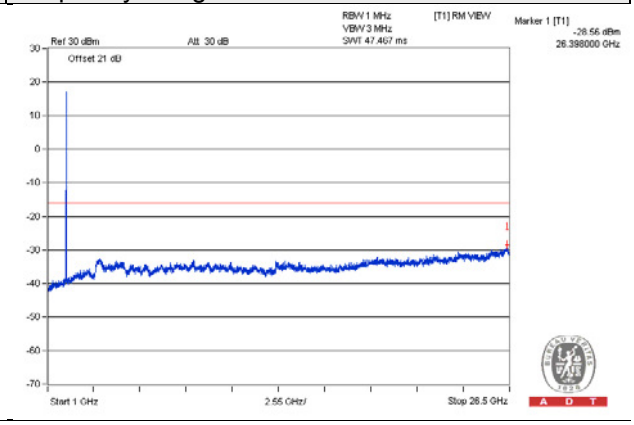




Chain 0				
QPSK / Channel Bandwidth: 15MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
903.00	-57.98	-16.01	-41.97	Pass
26398.00	-28.56	-16.01	-12.55	Pass

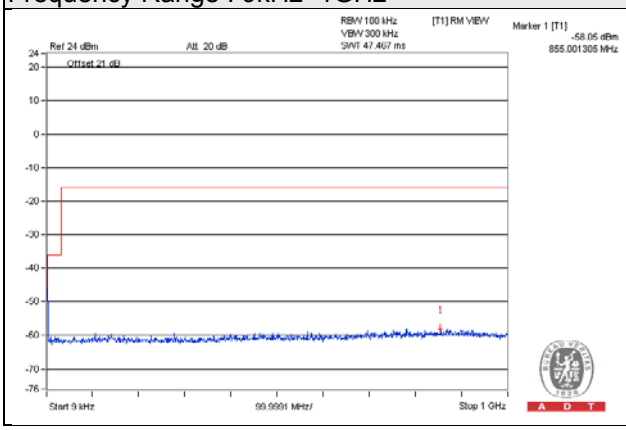
Channel 1125	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz ~26.5GHz

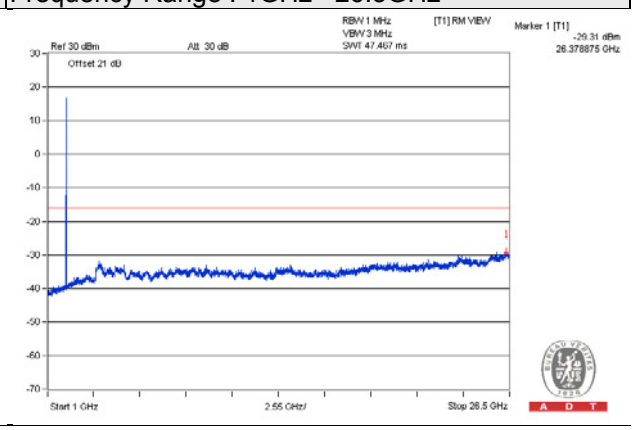




Chain 1				
QPSK / Channel Bandwidth: 15MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
855.00	-58.05	-16.01	-42.04	Pass
26378.88	-29.31	-16.01	-13.30	Pass

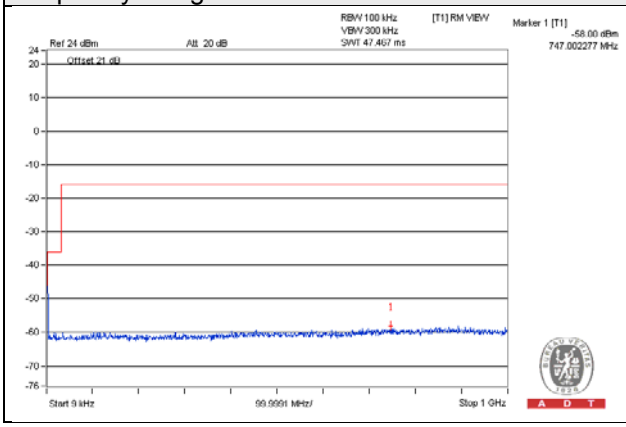
Channel 1125	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz ~26.5GHz

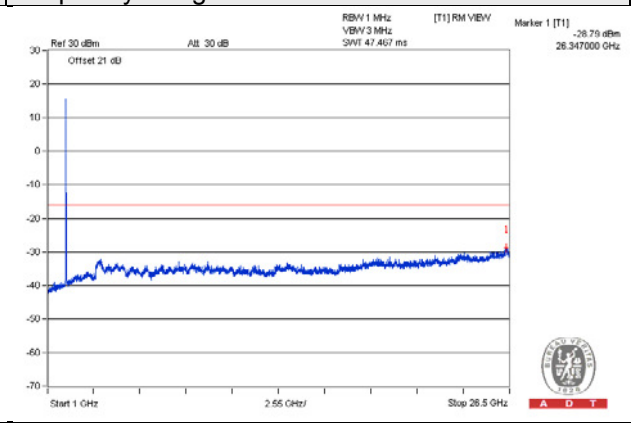




Chain 0				
QPSK / Channel Bandwidth: 20MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
747.00	-58.00	-16.01	-41.99	Pass
26347.00	-28.79	-16.01	-12.78	Pass

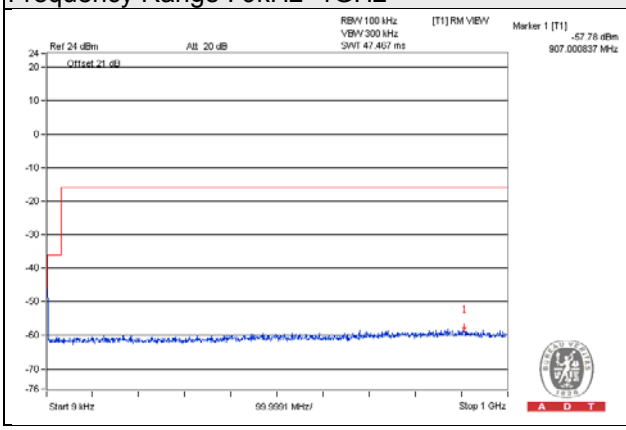
Channel 700	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz ~26.5GHz

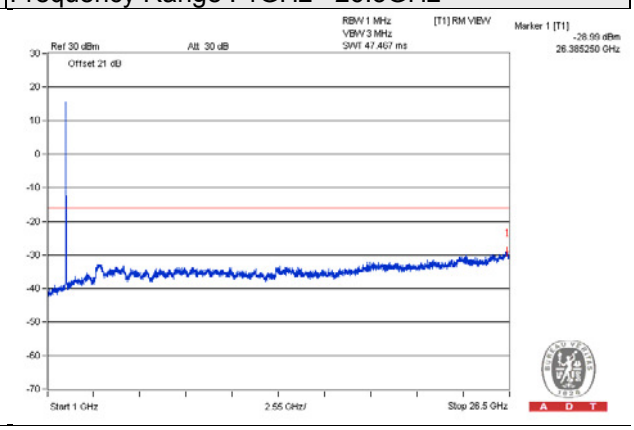




Chain 1				
QPSK / Channel Bandwidth: 20MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
907.00	-57.78	-16.01	-41.77	Pass
26385.25	-28.99	-16.01	-12.98	Pass

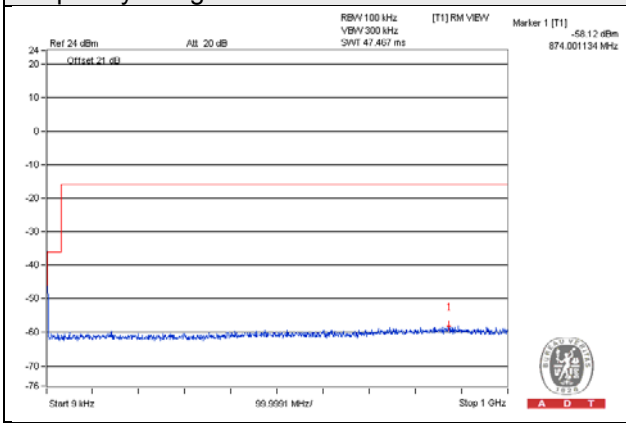
Channel 700	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz ~26.5GHz

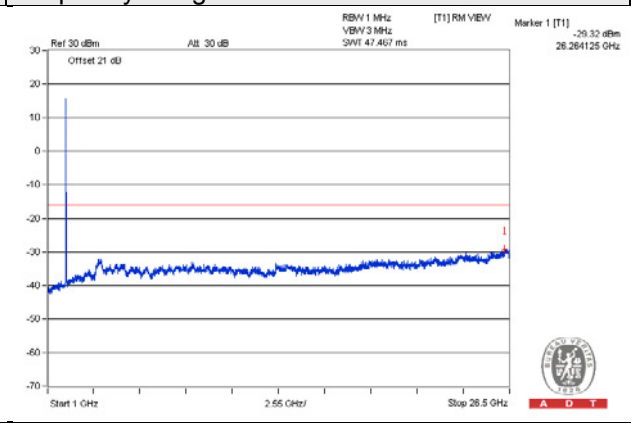




Chain 0				
QPSK / Channel Bandwidth: 20MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
874.00	-58.12	-16.01	-42.11	Pass
26264.13	-29.32	-16.01	-13.31	Pass

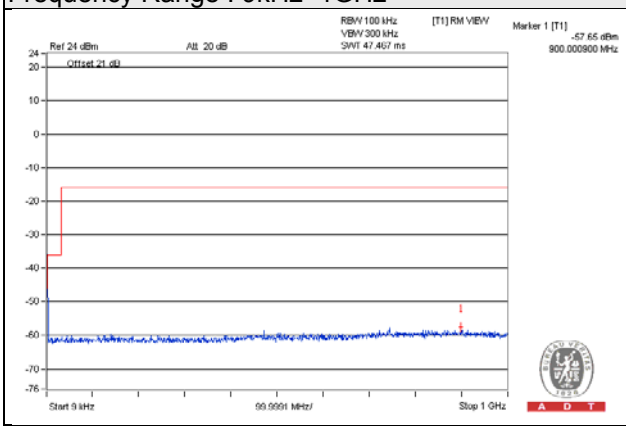
Channel 900	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz ~26.5GHz

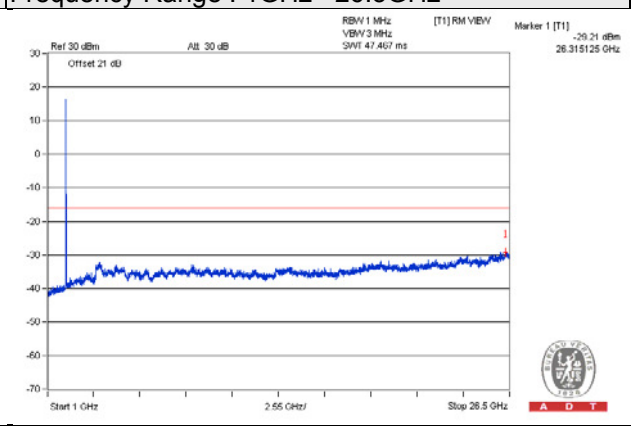




Chain 1				
QPSK / Channel Bandwidth: 20MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
900.00	-57.65	-16.01	-41.64	Pass
26315.13	-29.21	-16.01	-13.20	Pass

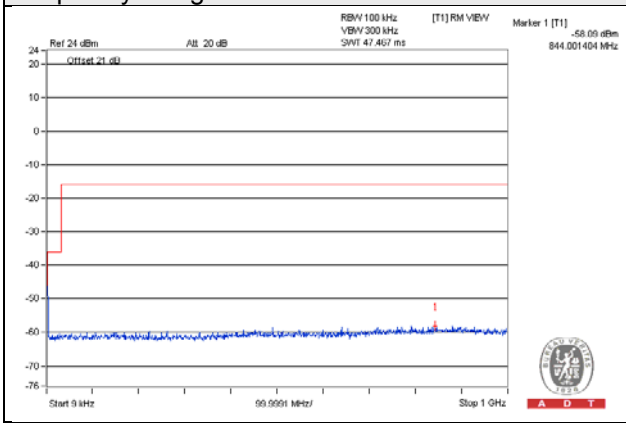
Channel 900	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz ~26.5GHz

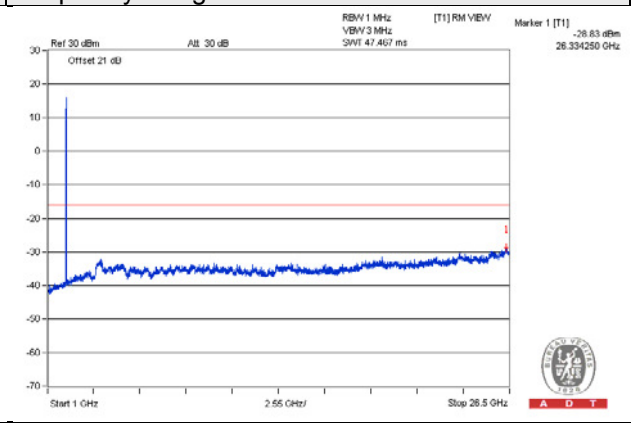




Chain 0				
QPSK / Channel Bandwidth: 20MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
844.00	-58.09	-16.01	-42.08	Pass
26334.25	-28.83	-16.01	-12.82	Pass

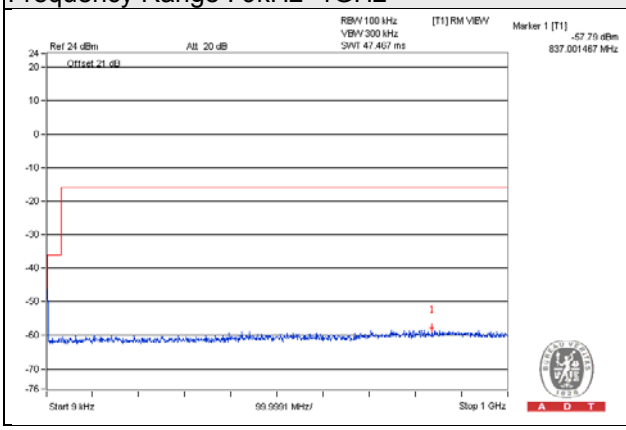
Channel 1100	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz ~26.5GHz

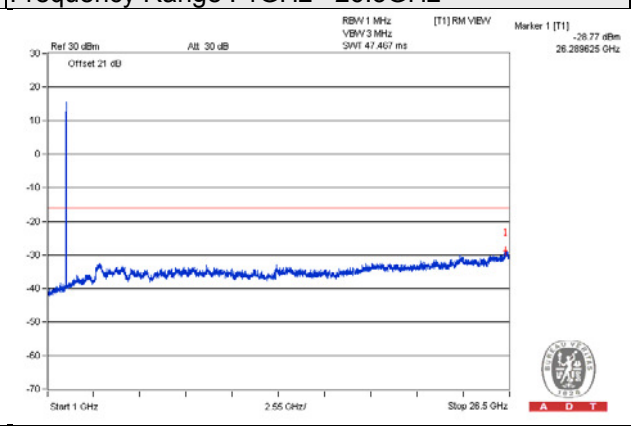




Chain 1				
QPSK / Channel Bandwidth: 20MHz				
Frequency(MHz)	Measurement Value	Limit	Margin	Result
837.00	-57.79	-16.01	-41.78	Pass
26289.63	-28.77	-16.01	-12.76	Pass

Channel 1100	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz ~26.5GHz





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. The power was measured with R&S Spectrum Analyzer. All measurements were done at 3 channels (low, middle and high channel of operational frequency range.)

b. Substitution method is used for EIRP 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 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 = Output power level of S.G – TX cable loss + Antenna gain of substitution antenna.

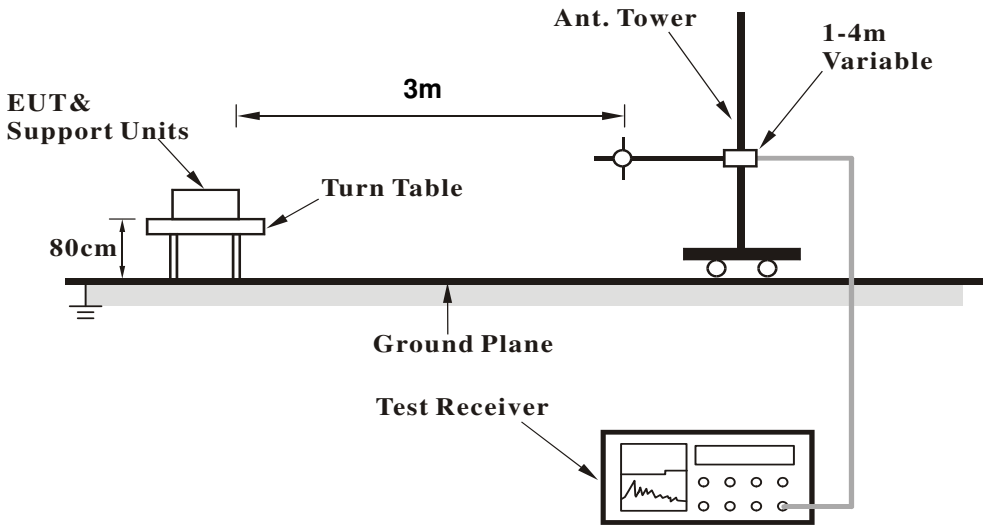
NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

4.7.3 Deviation from Test Standard

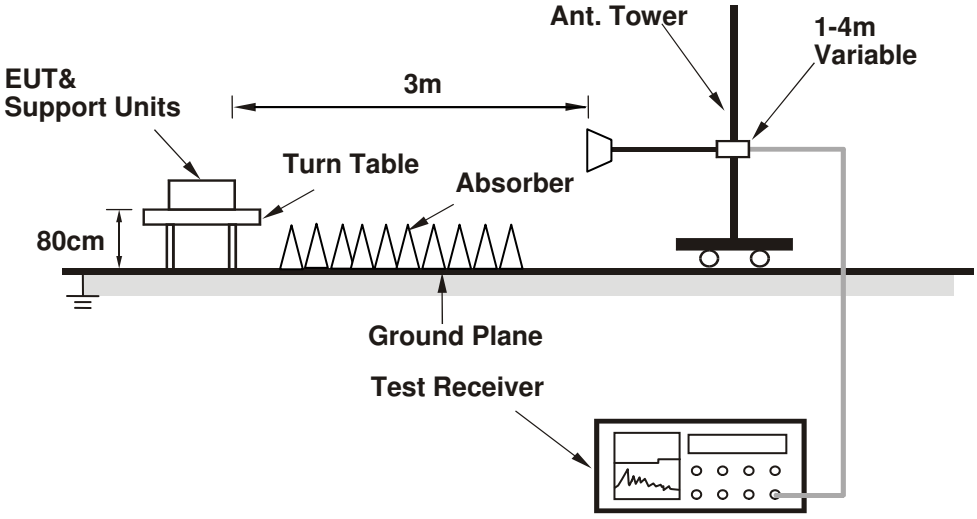
No deviation.

4.7.4 Test Setup

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



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

4.7.5 Test Results

Below 1GHz

Channel Bandwidth: 5MHz

Mode	TX channel 615	Frequency Range	Below 1000 MHz

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	92.61	38.10	-53.84	-1.05	-54.90	-13	-41.90
2	237.4	36.39	-58.97	3.85	-55.12	-13	-42.12
3	290.08	34.83	-60.65	3.78	-56.88	-13	-43.88
4	346.94	34.78	-62.96	3.60	-59.36	-13	-46.36
5	469.27	36.98	-60.22	2.84	-57.38	-13	-44.38
6	736.44	32.76	-63.60	1.03	-62.57	-13	-49.57
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	70.26	32.62	-55.65	-4.60	-60.26	-13	-47.26
2	94.94	34.32	-57.22	-0.92	-58.14	-13	-45.14
3	128.57	29.96	-61.50	-1.24	-62.74	-13	-49.74
4	239.32	33.35	-62.01	3.82	-58.18	-13	-45.18
5	510.66	33.88	-61.51	2.81	-58.70	-13	-45.70
6	610.67	35.00	-59.70	1.78	-57.92	-13	-44.92

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 900	Frequency Range	Below 1000 MHz

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	93.46	36.60	-55.20	-1.00	-56.20	-13	-43.20
2	237.15	35.70	-59.66	3.85	-55.81	-13	-42.81
3	289.82	34.58	-60.90	3.78	-57.12	-13	-44.12
4	346.07	34.28	-63.42	3.60	-59.82	-13	-46.82
5	469.24	37.69	-59.51	2.84	-56.67	-13	-43.67
6	737.2	31.17	-65.20	1.02	-64.17	-13	-51.17
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	69.81	31.95	-56.05	-4.73	-60.79	-13	-47.79
2	93.47	34.02	-57.78	-1.00	-58.78	-13	-45.78
3	127.49	28.73	-62.49	-1.23	-63.72	-13	-50.72
4	240.7	32.71	-62.64	3.81	-58.84	-13	-45.84
5	510.79	33.68	-61.71	2.81	-58.90	-13	-45.90
6	608.79	35.27	-59.42	1.78	-57.63	-13	-44.63

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 1175	Frequency Range	Below 1000 MHz

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	92.53	31.33	-60.63	-1.06	-61.68	-13	-48.68
2	237.36	33.29	-62.07	3.85	-58.22	-13	-45.22
3	288.74	30.98	-64.46	3.79	-60.68	-13	-47.68
4	344.73	30.89	-66.76	3.61	-63.15	-13	-50.15
5	471.44	35.28	-61.80	2.84	-58.96	-13	-45.96
6	739.28	27.07	-69.30	0.99	-68.31	-13	-55.31
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	69.35	27.56	-60.17	-4.87	-65.03	-13	-52.03
2	91.26	30.34	-61.84	-1.13	-62.97	-13	-49.97
3	131.15	25.33	-66.69	-1.25	-67.94	-13	-54.94
4	238.69	29.59	-65.77	3.83	-61.94	-13	-48.94
5	510.04	29.17	-66.23	2.82	-63.42	-13	-50.42
6	611.1	31.96	-62.74	1.78	-60.96	-13	-47.96

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

Channel Bandwidth: 5MHz

Mode	TX channel 615	Frequency Range	Above 1000MHz

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3865	63.42	-41.12	7.61	-33.51	-13	-20.51
2	5797.5	51.52	-52.96	6.91	-46.05	-13	-33.05
3	7730	54.96	-47.66	4.35	-43.31	-13	-30.31
4	9662.5	53.17	-48.43	4.14	-44.29	-13	-31.29
5	11595	50.64	-50.79	3.92	-46.87	-13	-33.87
6	13527.5	54.38	-45.71	3.19	-42.53	-13	-29.53
7	15460	56.79	-40.97	3.53	-37.43	-13	-24.43
8	17392.5	60.87	-38.49	3.11	-35.38	-13	-22.38
9	19325	61.1	-40.97	3.77	-37.20	-13	-24.20
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3865	67.24	-37.30	7.61	-29.69	-13	-16.69
2	5797.5	49.56	-54.92	6.91	-48.01	-13	-35.01
3	7730	55.48	-47.14	4.35	-42.79	-13	-29.79
4	9662.5	57.08	-44.52	4.14	-40.38	-13	-27.38
5	11595	52.14	-49.29	3.92	-45.37	-13	-32.37
6	13527.5	58.41	-41.68	3.19	-38.50	-13	-25.50
7	15460	52.51	-45.25	3.53	-41.71	-13	-28.71
8	17392.5	59	-40.36	3.11	-37.25	-13	-24.25
9	19325	59.42	-42.65	3.77	-38.88	-13	-25.88

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 900	Frequency Range	Above 1000MHz

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3920	63.90	-40.84	7.57	-33.26	-13	-20.26
2	5880	51.05	-53.29	6.85	-46.44	-13	-33.44
3	7840	55.70	-46.92	4.25	-42.67	-13	-29.67
4	9800	52.6	-48.98	4.10	-44.89	-13	-31.89
5	11760	51.17	-50.27	4.11	-46.17	-13	-33.17
6	13720	55.35	-44.47	2.73	-41.75	-13	-28.75
7	15680	55.98	-41.97	3.45	-38.52	-13	-25.52
8	17640	60.1	-39.41	3.20	-36.21	-13	-23.21
9	19600	60.3	-43.22	3.82	-39.40	-13	-26.40
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3920	66.56	-38.18	7.57	-30.60	-13	-17.60
2	5880	49.34	-55.00	6.85	-48.15	-13	-35.15
3	7840	55.22	-47.40	4.25	-43.15	-13	-30.15
4	9800	56.34	-45.24	4.10	-41.15	-13	-28.15
5	11760	51.61	-49.83	4.11	-45.73	-13	-32.73
6	13720	57.41	-42.41	2.73	-39.69	-13	-26.69
7	15680	53.3	-44.65	3.45	-41.20	-13	-28.20
8	17640	59.21	-40.30	3.20	-37.10	-13	-24.10
9	19600	60.1	-43.42	3.82	-39.60	-13	-26.60

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 1175	Frequency Range	Above 1000MHz

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3920	64.65	-40.41	7.53	-32.87	-13	-19.87
2	5880	51.64	-52.50	6.83	-45.67	-13	-32.67
3	7840	55.16	-47.46	4.11	-43.35	-13	-30.35
4	9800	53.47	-48.02	4.10	-43.92	-13	-30.92
5	11760	50.68	-50.74	4.41	-46.33	-13	-33.33
6	13720	55.8	-43.91	2.02	-41.89	-13	-28.89
7	15680	56.98	-41.17	3.37	-37.79	-13	-24.79
8	17640	62.25	-37.42	3.29	-34.12	-13	-21.12
9	19875	60.81	-44.16	3.87	-40.29	-13	-27.29
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3975	66.79	-38.27	7.53	-30.73	-13	-17.73
2	5962.5	49.12	-55.02	6.83	-48.19	-13	-35.19
3	7950	54.87	-47.75	4.11	-43.64	-13	-30.64
4	9937.5	56.54	-44.95	4.10	-40.85	-13	-27.85
5	11925	51.6	-49.82	4.41	-45.41	-13	-32.41
6	13912.5	57.29	-42.42	2.02	-40.40	-13	-27.40
7	15900	51.99	-46.16	3.37	-42.78	-13	-29.78
8	17887.5	58.99	-40.68	3.29	-37.38	-13	-24.38
9	19875	59.9	-45.07	3.87	-41.20	-13	-28.20

Remarks:

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

Below 1GHz

Channel Bandwidth: 10MHz

Mode	TX channel 650	Frequency Range	Below 1000 MHz

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	89.32	34.19	-58.32	-1.24	-59.56	-13	-46.56
2	236.16	32.57	-62.80	3.87	-58.93	-13	-45.93
3	290.79	31.25	-64.25	3.77	-60.48	-13	-47.48
4	343.86	32.14	-65.47	3.61	-61.86	-13	-48.86
5	471.46	33.40	-63.68	2.84	-60.84	-13	-47.84
6	735.13	26.52	-69.84	1.05	-68.79	-13	-55.79
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	69.58	27.23	-60.63	-4.80	-65.44	-13	-52.44
2	90.67	30.45	-61.83	-1.16	-62.99	-13	-49.99
3	127.6	24.80	-66.45	-1.23	-67.68	-13	-54.68
4	238.56	27.26	-68.10	3.83	-64.27	-13	-51.27
5	507.81	29.37	-66.06	2.83	-63.23	-13	-50.23
6	608.85	30.30	-64.39	1.78	-62.60	-13	-49.60

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 900	Frequency Range	Below 1000 MHz

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	93.54	30.89	-60.89	-1.00	-61.89	-13	-48.89
2	240.48	33.17	-62.18	3.81	-58.37	-13	-45.37
3	291.7	29.33	-66.20	3.77	-62.43	-13	-49.43
4	343.67	31.94	-65.66	3.61	-62.05	-13	-49.05
5	469.65	30.77	-66.41	2.84	-63.57	-13	-50.57
6	737.1	28.18	-68.19	1.02	-67.16	-13	-54.16
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	71.86	27.27	-61.96	-4.14	-66.10	-13	-53.10
2	96.24	28.59	-62.73	-0.84	-63.57	-13	-50.57
3	128.14	25.64	-65.72	-1.23	-66.96	-13	-53.96
4	238.82	28.14	-67.22	3.83	-63.39	-13	-50.39
5	508.93	30.11	-65.30	2.82	-62.48	-13	-49.48
6	608.51	31.94	-62.74	1.78	-60.96	-13	-47.96

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 1150	Frequency Range	Below 1000 MHz

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	92.71	33.83	-58.10	-1.05	-59.14	-13	-46.14
2	236.96	32.60	-62.77	3.86	-58.91	-13	-45.91
3	289.98	30.71	-64.77	3.78	-60.99	-13	-47.99
4	347.75	31.16	-66.61	3.60	-63.01	-13	-50.01
5	470.94	34.57	-62.54	2.84	-59.70	-13	-46.70
6	736.87	27.03	-69.34	1.03	-68.31	-13	-55.31
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	69.92	29.09	-58.98	-4.70	-63.68	-13	-50.68
2	95.44	30.49	-60.97	-0.89	-61.86	-13	-48.86
3	130.85	25.13	-66.82	-1.25	-68.07	-13	-55.07
4	240.74	27.72	-67.63	3.81	-63.83	-13	-50.83
5	511.43	33.94	-61.44	2.80	-58.64	-13	-45.64
6	609.38	31.20	-63.49	1.78	-61.71	-13	-48.71

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

Channel Bandwidth: 10MHz

Mode	TX channel 650	Frequency Range	Above 1000MHz

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3870	62.04	-43.12	7.58	-35.54	-13	-22.54
2	5805	51.36	-52.78	7.10	-45.68	-13	-32.68
3	7740	53.98	-48.64	4.34	-44.30	-13	-31.30
4	9675	52.88	-48.72	4.14	-44.58	-13	-31.58
5	11610	50.45	-51.00	3.92	-47.07	-13	-34.07
6	13545	53.44	-46.63	3.15	-43.48	-13	-30.48
7	15480	56.75	-41.02	3.53	-37.50	-13	-24.50
8	17415	61.71	-37.67	3.12	-34.54	-13	-21.54
9	19350	61.72	-40.48	3.77	-36.71	-13	-23.71
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3870	65.79	-39.37	7.58	-31.79	-13	-18.79
2	5805	48.76	-55.38	7.10	-48.28	-13	-35.28
3	7740	54.01	-48.61	4.34	-44.27	-13	-31.27
4	9675	56.29	-45.31	4.14	-41.17	-13	-28.17
5	11610	50.99	-50.46	3.92	-46.53	-13	-33.53
6	13545	58.07	-42.00	3.15	-38.85	-13	-25.85
7	15480	52.03	-45.74	3.53	-42.22	-13	-29.22
8	17415	58.7	-40.68	3.12	-37.55	-13	-24.55
9	19350	61.01	-41.19	3.77	-37.42	-13	-24.42

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 900	Frequency Range	Above 1000MHz

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3920	61.64	-43.10	7.57	-35.52	-13	-22.52
2	5880	50.12	-54.22	6.85	-47.37	-13	-34.37
3	7840	53.63	-48.99	4.25	-44.74	-13	-31.74
4	9800	51.49	-50.09	4.10	-46.00	-13	-33.00
5	11760	49.93	-51.51	4.11	-47.41	-13	-34.41
6	13720	53.29	-46.53	2.73	-43.81	-13	-30.81
7	15680	56.41	-41.54	3.45	-38.09	-13	-25.09
8	17640	61.15	-38.36	3.20	-35.16	-13	-22.16
9	19600	61.09	-42.43	3.82	-38.61	-13	-25.61
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3920	67.41	-37.33	7.57	-29.75	-13	-16.75
2	5880	49.23	-55.11	6.85	-48.26	-13	-35.26
3	7840	55.12	-47.50	4.25	-43.25	-13	-30.25
4	9800	57.31	-44.27	4.10	-40.18	-13	-27.18
5	11760	52.51	-48.93	4.11	-44.83	-13	-31.83
6	13720	57.9	-41.92	2.73	-39.20	-13	-26.20
7	15680	53.46	-44.49	3.45	-41.04	-13	-28.04
8	17640	59.58	-39.93	3.20	-36.73	-13	-23.73
9	19600	60.11	-43.41	3.82	-39.59	-13	-26.59

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 1150	Frequency Range	Above 1000MHz

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3970	62.44	-42.62	7.54	-35.09	-13	-22.09
2	5955	50.64	-53.50	6.85	-46.65	-13	-33.65
3	7940	54.01	-48.61	4.11	-44.50	-13	-31.50
4	9925	51.04	-50.44	4.11	-46.33	-13	-33.33
5	11910	49.84	-51.57	4.41	-47.16	-13	-34.16
6	13895	53.29	-46.46	1.99	-44.47	-13	-31.47
7	15880	56.81	-41.32	3.38	-37.94	-13	-24.94
8	17865	61.73	-37.92	3.29	-34.64	-13	-21.64
9	19850	61.75	-43.09	3.87	-39.22	-13	-26.22
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	**3970**	**68.3**	**-36.76**	**7.54**	**-29.23**	**-13**	**-16.23**
2	5955	48.29	-55.85	6.85	-49.00	-13	-36.00
3	7940	55.89	-46.73	4.11	-42.62	-13	-29.62
4	9925	58.19	-43.29	4.11	-39.18	-13	-26.18
5	11910	53.32	-48.09	4.41	-43.68	-13	-30.68
6	13895	56.91	-42.84	1.99	-40.85	-13	-27.85
7	15880	54.3	-43.83	3.38	-40.45	-13	-27.45
8	17865	59.24	-40.41	3.29	-37.13	-13	-24.13
9	19850	62.02	-42.82	3.87	-38.95	-13	-25.95

Remarks:

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

Below 1GHz

Channel Bandwidth: 15MHz

Mode	TX channel 675	Frequency Range	Below 1000 MHz

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	90.9	32.08	-60.16	-1.15	-61.31	-13	-48.31
2	236.78	33.90	-61.47	3.86	-57.61	-13	-44.61
3	289	30.68	-64.77	3.78	-60.99	-13	-47.99
4	346.16	28.89	-68.82	3.60	-65.21	-13	-52.21
5	470.94	33.30	-63.81	2.84	-60.97	-13	-47.97
6	735.93	26.86	-69.50	1.04	-68.46	-13	-55.46
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	70.97	28.01	-60.69	-4.40	-65.09	-13	-52.09
2	96.31	27.00	-64.31	-0.84	-65.15	-13	-52.15
3	127.47	24.59	-66.63	-1.23	-67.86	-13	-54.86
4	239.14	28.28	-67.08	3.83	-63.25	-13	-50.25
5	511.42	27.76	-67.62	2.81	-64.82	-13	-51.82
6	606.62	30.69	-63.98	1.78	-62.20	-13	-49.20

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 900	Frequency Range	Below 1000 MHz

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	89.88	32.18	-60.23	-1.21	-61.44	-13	-48.44
2	237.55	31.53	-63.83	3.85	-59.99	-13	-46.99
3	288.48	30.10	-65.33	3.79	-61.55	-13	-48.55
4	346.84	30.30	-67.43	3.60	-63.83	-13	-50.83
5	469.75	32.52	-64.66	2.84	-61.82	-13	-48.82
6	739.71	28.76	-67.61	0.98	-66.63	-13	-53.63
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	68.51	26.50	-60.72	-5.11	-65.83	-13	-52.83
2	93.01	30.53	-61.34	-1.03	-62.37	-13	-49.37
3	129.26	24.76	-66.85	-1.24	-68.09	-13	-55.09
4	239.4	28.90	-66.46	3.82	-62.63	-13	-49.63
5	509.21	27.90	-67.51	2.82	-64.69	-13	-51.69
6	610.56	29.84	-64.86	1.78	-63.08	-13	-50.08

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 1125	Frequency Range	Below 1000 MHz

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	91.61	30.64	-61.48	-1.11	-62.59	-13	-49.59
2	238.52	32.03	-63.33	3.83	-59.50	-13	-46.50
3	290.14	30.10	-65.38	3.78	-61.61	-13	-48.61
4	348.34	30.39	-67.41	3.60	-63.81	-13	-50.81
5	473.51	33.63	-63.34	2.85	-60.49	-13	-47.49
6	734.85	27.81	-68.55	1.06	-67.50	-13	-54.50
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	65.68	25.81	-59.72	-5.93	-65.65	-13	-52.65
2	93.84	27.78	-63.95	-0.98	-64.93	-13	-51.93
3	127.8	26.44	-64.85	-1.23	-66.08	-13	-53.08
4	237.63	28.25	-67.11	3.85	-63.27	-13	-50.27
5	510.26	28.54	-66.86	2.81	-64.04	-13	-51.04
6	609.57	32.79	-61.90	1.78	-60.12	-13	-47.12

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

Channel Bandwidth: 15MHz

Mode	TX channel 675	Frequency Range	Above 1000MHz

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3875	62.22	-42.35	7.60	-34.75	-13	-21.75
2	5812.5	55.96	-48.18	7.09	-41.09	-13	-28.09
3	7750	46.68	-55.94	4.33	-51.61	-13	-38.61
4	9687.5	48.13	-53.47	4.13	-49.33	-13	-36.33
5	11625	50.38	-51.07	3.94	-47.13	-13	-34.13
6	13562.5	51.56	-48.49	3.11	-45.37	-13	-32.37
7	15500	50.95	-46.84	3.52	-43.32	-13	-30.32
8	17437.5	56.96	-42.43	3.13	-39.30	-13	-26.30
9	19375	62.44	-39.89	3.78	-36.11	-13	-23.11
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3875	67.47	-37.10	7.60	-29.50	-13	-16.50
2	5812.5	42.14	-62.00	7.09	-54.91	-13	-41.91
3	7750	43.21	-59.41	4.33	-55.08	-13	-42.08
4	9687.5	47.63	-53.97	4.13	-49.83	-13	-36.83
5	11625	49.74	-51.71	3.94	-47.77	-13	-34.77
6	13562.5	51	-49.05	3.11	-45.93	-13	-32.93
7	15500	49.88	-47.91	3.52	-44.39	-13	-31.39
8	17437.5	56.66	-42.73	3.13	-39.60	-13	-26.60
9	19375	62.01	-40.32	3.78	-36.54	-13	-23.54

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 900	Frequency Range	Above 1000MHz

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3920	62.80	-41.94	7.57	-34.36	-13	-21.36
2	5880	54.47	-49.87	6.85	-43.02	-13	-30.02
3	7840	47.87	-54.75	4.25	-50.50	-13	-37.50
4	9800	49.45	-52.13	4.10	-48.04	-13	-35.04
5	11760	48.86	-52.58	4.11	-48.48	-13	-35.48
6	13720	50.69	-49.13	2.73	-46.41	-13	-33.41
7	15680	49.1	-48.85	3.45	-45.40	-13	-32.40
8	17640	56.29	-43.22	3.20	-40.02	-13	-27.02
9	19600	61.41	-42.11	3.82	-38.29	-13	-25.29
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3920	66.59	-38.15	7.57	-30.57	-13	-17.57
2	5880	41.83	-62.51	6.85	-55.66	-13	-42.66
3	7840	43.61	-59.01	4.25	-54.76	-13	-41.76
4	9800	47.06	-54.52	4.10	-50.43	-13	-37.43
5	11760	48.35	-53.09	4.11	-48.99	-13	-35.99
6	13720	50.62	-49.20	2.73	-46.48	-13	-33.48
7	15680	50.64	-47.31	3.45	-43.86	-13	-30.86
8	17640	56.37	-43.14	3.20	-39.94	-13	-26.94
9	19600	60.63	-42.89	3.82	-39.07	-13	-26.07

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 1125	Frequency Range	Above 1000MHz

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3965	63.50	-41.57	7.54	-34.03	-13	-21.03
2	5947.5	55.31	-48.83	6.86	-41.97	-13	-28.97
3	7930	48.43	-54.19	4.10	-50.09	-13	-37.09
4	9912.5	49.7	-51.76	4.12	-47.64	-13	-34.64
5	11895	48.23	-53.21	4.27	-48.94	-13	-35.94
6	13877.5	50.73	-48.90	2.43	-46.47	-13	-33.47
7	15860	48.41	-49.70	3.39	-46.31	-13	-33.31
8	17842.5	55.93	-43.71	3.28	-40.43	-13	-27.43
9	19825	61.19	-43.52	3.86	-39.65	-13	-26.65
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3965	67.11	-37.96	7.54	-30.42	-13	-17.42
2	5947.5	41.51	-62.63	6.86	-55.77	-13	-42.77
3	7930	44.56	-58.06	4.10	-53.96	-13	-40.96
4	9912.5	47.77	-53.69	4.12	-49.57	-13	-36.57
5	11895	48.14	-53.30	4.27	-49.03	-13	-36.03
6	13877.5	51.49	-48.14	2.43	-45.71	-13	-32.71
7	15860	49.51	-48.60	3.39	-45.21	-13	-32.21
8	17842.5	57.22	-42.42	3.28	-39.14	-13	-26.14
9	19825	60.88	-43.83	3.86	-39.96	-13	-26.96

Remarks:

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

Below 1GHz

Channel Bandwidth: 20MHz

Mode	TX channel 700	Frequency Range	Below 1000 MHz

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	91.51	33.54	-58.59	-1.12	-59.71	-13	-46.71
2	238.91	32.19	-63.17	3.83	-59.34	-13	-46.34
3	290.89	30.71	-64.80	3.77	-61.03	-13	-48.03
4	345.83	28.93	-68.76	3.60	-65.16	-13	-52.16
5	471.63	32.19	-64.88	2.84	-62.04	-13	-49.04
6	735.66	27.78	-68.58	1.05	-67.54	-13	-54.54
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	66.91	25.02	-61.24	-5.57	-66.82	-13	-53.82
2	91.2	29.89	-62.30	-1.13	-63.43	-13	-50.43
3	128.54	26.19	-65.26	-1.24	-66.50	-13	-53.50
4	240.13	27.84	-67.51	3.81	-63.70	-13	-50.70
5	510.15	30.09	-65.31	2.81	-62.50	-13	-49.50
6	608.96	32.14	-62.55	1.78	-60.77	-13	-47.77

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 900	Frequency Range	Below 1000 MHz

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	91.79	33.55	-58.53	-1.10	-59.63	-13	-46.63
2	235.15	32.07	-63.30	3.88	-59.42	-13	-46.42
3	288.69	32.14	-63.30	3.79	-59.51	-13	-46.51
4	349.83	28.88	-68.98	3.60	-65.38	-13	-52.38
5	467.86	33.36	-63.92	2.84	-61.08	-13	-48.08
6	735.44	29.11	-67.25	1.05	-66.21	-13	-53.21
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	70.45	25.99	-62.40	-4.55	-66.94	-13	-53.94
2	94.2	27.29	-64.38	-0.96	-65.34	-13	-52.34
3	128.32	25.11	-66.29	-1.24	-67.53	-13	-54.53
4	239.46	26.88	-68.48	3.82	-64.65	-13	-51.65
5	510.47	30.13	-65.27	2.81	-62.45	-13	-49.45
6	611.37	30.76	-63.95	1.78	-62.17	-13	-49.17

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 1100	Frequency Range	Below 1000 MHz

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	91.17	32.88	-59.31	-1.14	-60.45	-13	-47.45
2	235.25	31.07	-64.30	3.88	-60.42	-13	-47.42
3	293.11	32.52	-63.05	3.76	-59.30	-13	-46.30
4	345.55	30.68	-67.00	3.61	-63.39	-13	-50.39
5	471.14	33.33	-63.77	2.84	-60.93	-13	-47.93
6	737.5	29.18	-67.19	1.02	-66.17	-13	-53.17
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	70.8	28.61	-59.99	-4.45	-64.43	-13	-51.43
2	96.13	28.02	-63.32	-0.85	-64.17	-13	-51.17
3	126.21	25.88	-65.07	-1.22	-66.29	-13	-53.29
4	239.8	27.76	-67.60	3.82	-63.78	-13	-50.78
5	510.79	31.84	-63.55	2.81	-60.74	-13	-47.74
6	608.25	33.26	-61.42	1.78	-59.64	-13	-46.64

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

Channel Bandwidth: 20MHz

Mode	TX channel 700	Frequency Range	Above 1000MHz

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3880	62.70	-42.45	7.57	-34.88	-13	-21.88
2	5820	55.40	-48.74	7.07	-41.67	-13	-28.67
3	7760	47.75	-54.87	4.32	-50.55	-13	-37.55
4	9700	49.87	-51.73	4.13	-47.60	-13	-34.60
5	11640	48.89	-52.56	3.96	-48.60	-13	-35.60
6	13580	51.04	-48.98	3.08	-45.91	-13	-32.91
7	15520	48.28	-49.53	3.51	-46.02	-13	-33.02
8	17460	56.48	-42.92	3.14	-39.79	-13	-26.79
9	19400	60.73	-41.73	3.78	-37.95	-13	-24.95
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3880	62.74	-42.41	7.57	-34.84	-13	-21.84
2	5820	37.26	-66.88	7.07	-59.81	-13	-46.81
3	7760	41.48	-61.14	4.32	-56.82	-13	-43.82
4	9700	48.19	-53.41	4.13	-49.28	-13	-36.28
5	11640	47.89	-53.56	3.96	-49.60	-13	-36.60
6	13580	50.93	-49.09	3.08	-46.02	-13	-33.02
7	15520	49.20	-48.61	3.51	-45.10	-13	-32.10
8	17460	54.97	-44.43	3.14	-41.30	-13	-28.30
9	19400	61.01	-41.45	3.78	-37.67	-13	-24.67

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 900	Frequency Range	Above 1000MHz

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3920	63.04	-41.70	7.57	-34.12	-13	-21.12
2	5880	55.81	-48.53	6.85	-41.68	-13	-28.68
3	7840	48.12	-54.50	4.25	-50.25	-13	-37.25
4	9800	49.97	-51.61	4.10	-47.52	-13	-34.52
5	11760	47.77	-53.67	4.11	-49.57	-13	-36.57
6	13720	50.44	-49.38	2.73	-46.66	-13	-33.66
7	15680	48.29	-49.66	3.45	-46.21	-13	-33.21
8	17640	55.51	-44.00	3.20	-40.80	-13	-27.80
9	19600	60.51	-43.01	3.82	-39.19	-13	-26.19
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3920	62.82	-41.92	7.57	-34.34	-13	-21.34
2	5880	35.98	-68.36	6.85	-61.51	-13	-48.51
3	7840	41.10	-61.52	4.25	-57.27	-13	-44.27
4	9800	46.85	-54.73	4.10	-50.64	-13	-37.64
5	11760	47.18	-54.26	4.11	-50.16	-13	-37.16
6	13720	51.34	-48.48	2.73	-45.76	-13	-32.76
7	15680	48.65	-49.30	3.45	-45.85	-13	-32.85
8	17640	55.29	-44.22	3.20	-41.02	-13	-28.02
9	19600	61.24	-42.28	3.82	-38.46	-13	-25.46

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 1100	Frequency Range	Above 1000MHz

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3960	64.10	-40.97	7.54	-33.43	-13	-20.43
2	5940	56.22	-47.92	6.87	-41.05	-13	-28.05
3	7920	48.05	-54.57	4.10	-50.47	-13	-37.47
4	9900	50.00	-51.45	4.13	-47.32	-13	-34.32
5	11880	49.11	-52.33	4.25	-48.08	-13	-35.08
6	13860	49.87	-49.98	1.93	-48.04	-13	-35.04
7	15840	48.20	-49.89	3.39	-46.50	-13	-33.50
8	17820	55.82	-43.80	3.27	-40.53	-13	-27.53
9	19800	61.36	-43.22	3.86	-39.36	-13	-26.36
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3960	62.19	-42.88	7.54	-35.34	-13	-22.34
2	5940	36.41	-67.73	6.87	-60.86	-13	-47.86
3	7920	40.90	-61.72	4.10	-57.62	-13	-44.62
4	9900	47.23	-54.22	4.13	-50.09	-13	-37.09
5	11880	48.25	-53.19	4.25	-48.94	-13	-35.94
6	13860	51.47	-48.38	1.93	-46.44	-13	-33.44
7	15840	49.05	-49.04	3.39	-45.65	-13	-32.65
8	17820	54.89	-44.73	3.27	-41.46	-13	-28.46
9	19800	59.84	-44.74	3.86	-40.88	-13	-27.88

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

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