

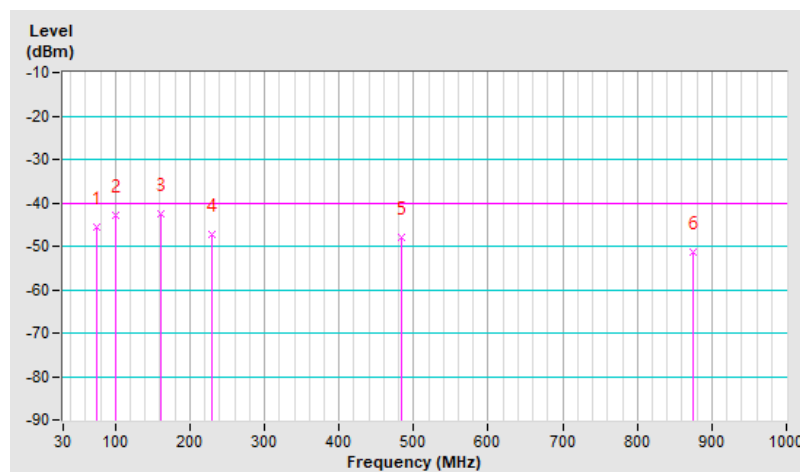
7.7 Radiated Spurious Emissions below 1GHz

RF Mode	NR n48 Channel Bandwidth: 20MHz	Channel	CH 646000 : 3690.00 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 69% RH
Tested By	Greg Lin		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	75.59	-45.59	-40.00	-5.59	1.99 H	252	66.45	-112.04
2	99.84	-42.88	-40.00	-2.88	1.99 H	125	69.81	-112.69
3	161.92	-42.52	-40.00	-2.52	1.99 H	2	65.45	-107.97
4	228.85	-47.25	-40.00	-7.25	1.49 H	174	63.58	-110.83
5	482.99	-47.97	-40.00	-7.97	1.24 H	26	54.97	-102.94
6	874.87	-51.27	-40.00	-11.27	1.00 H	316	45.00	-96.27

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The EIRP levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

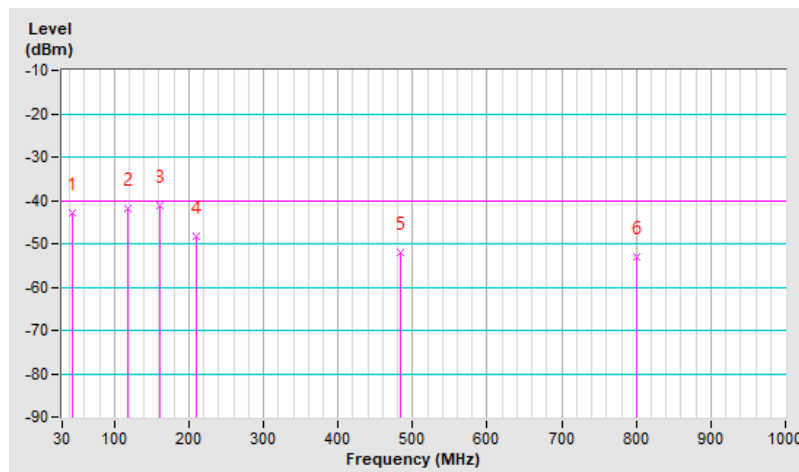


RF Mode	NR n48 Channel Bandwidth: 20MHz	Channel	CH 646000 : 3690.00 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 69% RH
Tested By	Greg Lin		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	43.58	-42.81	-40.00	-2.81	1.25 V	68	65.60	-108.41
2	117.30	-42.03	-40.00	-2.03	1.00 V	202	68.69	-110.72
3	160.95	-41.02	-40.00	-1.02	1.50 V	223	66.99	-108.01
4	209.45	-48.14	-40.00	-8.14	1.00 V	189	63.69	-111.83
5	482.99	-51.95	-40.00	-11.95	1.25 V	75	50.99	-102.94
6	800.18	-53.10	-40.00	-13.10	1.00 V	341	44.29	-97.39

Remarks:

- EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
- Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
- Margin value = EIRP – Limit value
- The other EIRP levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
- The EIRP levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



7.8 Radiated Spurious Emissions above 1GHz

RF Mode	NR n48 Channel Bandwidth: 20MHz	Channel	CH 637334 : 3560.01 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 69% RH
Tested By	Greg Lin		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7120.02	-42.52	-40.00	-2.52	1.60 H	352	45.16	-87.68
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7120.02	-41.24	-40.00	-1.24	1.39 V	38	46.44	-87.68

Remarks:

- EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
- Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
- Margin value = EIRP – Limit value
- The other EIRP levels were very low against the limit.



RF Mode	NR n48 Channel Bandwidth: 20MHz	Channel	CH 641666 : 3624.99 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 69% RH
Tested By	Greg Lin		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7249.98	-42.50	-40.00	-2.50	1.59 H	348	45.21	-87.71
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7249.98	-41.49	-40.00	-1.49	1.41 V	37	46.22	-87.71

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

RF Mode	NR n48 Channel Bandwidth: 20MHz	Channel	CH 646000 : 3690.00 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 69% RH
Tested By	Greg Lin		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7380.00	-42.20	-40.00	-2.20	1.52 H	345	45.27	-87.47
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7380.00	-41.04	-40.00	-1.04	1.41 V	36	46.43	-87.47

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.



RF Mode	NR n48 Channel Bandwidth: 40MHz	Channel	CH 638000 : 3570.00 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 69% RH
Tested By	Greg Lin		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7140.00	-42.55	-40.00	-2.55	1.53 H	345	45.18	-87.73
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7140.00	-41.37	-40.00	-1.37	1.36 V	40	46.36	-87.73

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.



RF Mode	NR n48 Channel Bandwidth: 40MHz	Channel	CH 641666 : 3624.99 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 69% RH
Tested By	Greg Lin		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7249.98	-42.58	-40.00	-2.58	1.57 H	345	45.13	-87.71
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7249.98	-41.25	-40.00	-1.25	1.47 V	38	46.46	-87.71

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.



RF Mode	NR n48 Channel Bandwidth: 40MHz	Channel	CH 645332 : 3679.98 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 69% RH
Tested By	Greg Lin		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7359.96	-42.21	-40.00	-2.21	1.52 H	346	45.32	-87.53
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7359.96	-41.15	-40.00	-1.15	1.38 V	34	46.38	-87.53

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

7.9 Frequency Stability

Environmental Conditions:	25°C, 60% RH	Tested By:	Kevin Kuo
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NR n48 SCS 30 kHz, Channel Bandwidth: 20 MHz

Chain 0

Frequency Stability Versus Voltage				
Voltage (Vac)	CH 637334 (3560.01 MHz)		CH 646000 (3690 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
120.0	3560.010001	0.000281	3689.999999	-0.000271
102.0	3560.009997	-0.000843	3689.999999	-0.000271
138.0	3560.010003	0.000843	3689.999997	-0.000813

Note: The applicant defined the normal working voltage is from 102 to 138 Vac.

Frequency Stability Versus Temperature				
Temperature (°C)	CH 637334 (3560.01 MHz)		CH 646000 (3690 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3560.010001	0.000281	3690.000002	0.000542
-20	3560.010003	0.000843	3689.999996	-0.001084
-10	3560.009997	-0.000843	3690.000002	0.000542
0	3560.010001	0.000281	3689.999996	-0.001084
10	3560.009998	-0.000562	3689.999995	-0.001355
20	3560.009997	-0.000843	3689.999999	-0.000271
30	3560.010002	0.000562	3689.999999	-0.000271
40	3560.009998	-0.000562	3689.999999	-0.000271
50	3560.010003	0.000843	3690.000002	0.000542
55	3560.009998	-0.000562	3690.000004	0.001084

Chain 1

Frequency Stability Versus Voltage				
Voltage (Vac)	CH 637334 (3560.01 MHz)		CH 646000 (3690 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
120.0	3560.009996	-0.001124	3690.000002	0.000542
102.0	3560.009999	-0.000281	3689.999996	-0.001084
138.0	3560.009995	-0.001404	3690.000002	0.000542

Note: The applicant defined the normal working voltage is from 102 to 138 Vac.

Frequency Stability Versus Temperature				
Temperature (°C)	CH 637334 (3560.01 MHz)		CH 646000 (3690 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3560.009999	-0.000281	3690.000003	0.000813
-20	3560.009997	-0.000843	3689.999999	-0.000271
-10	3560.009996	-0.001124	3690.000002	0.000542
0	3560.009998	-0.000562	3690.000004	0.001084
10	3560.009997	-0.000843	3689.999996	-0.001084
20	3560.009996	-0.001124	3690.000002	0.000542
30	3560.009999	-0.000281	3689.999999	-0.000271
40	3560.009995	-0.001404	3690.000002	0.000542
50	3560.010001	0.000281	3690.000004	0.001084
55	3560.009997	-0.000843	3689.999997	-0.000813

NR n48 SCS 30 kHz, Channel Bandwidth: 30 MHz
Chain 0

Frequency Stability Versus Voltage				
Voltage (Vac)	CH 637668 (3565.02 MHz)		CH 645666 (3684.99 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
120.0	3565.019999	-0.000281	3684.989999	-0.000271
102.0	3565.020001	0.000281	3684.989999	-0.000271
138.0	3565.020002	0.000561	3684.990001	0.000271

Note: The applicant defined the normal working voltage is from 102 to 138 Vac.

Frequency Stability Versus Temperature				
Temperature (°C)	CH 637668 (3565.02 MHz)		CH 645666 (3684.99 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3565.020004	0.001122	3684.990003	0.000814
-20	3565.020002	0.000561	3684.990005	0.001357
-10	3565.020002	0.000561	3684.989997	-0.000814
0	3565.019999	-0.000281	3684.990001	0.000271
10	3565.020001	0.000281	3684.990003	0.000814
20	3565.019998	-0.000561	3684.990003	0.000814
30	3565.020003	0.000842	3684.990003	0.000814
40	3565.020003	0.000842	3684.990005	0.001357
50	3565.020003	0.000842	3684.989998	-0.000543
55	3565.020002	0.000561	3684.989997	-0.000814

Chain 1

Frequency Stability Versus Voltage				
Voltage (Vac)	CH 637668 (3565.02 MHz)		CH 645666 (3684.99 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
120.0	3565.019998	-0.000561	3684.990001	0.000271
102.0	3565.019999	-0.000281	3684.989995	-0.001357
138.0	3565.020004	0.001122	3684.990003	0.000814

Note: The applicant defined the normal working voltage is from 102 to 138 Vac.

Frequency Stability Versus Temperature				
Temperature (°C)	CH 637668 (3565.02 MHz)		CH 645666 (3684.99 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3565.019998	-0.000561	3684.990001	0.000271
-20	3565.020004	0.001122	3684.990005	0.001357
-10	3565.020005	0.001403	3684.990001	0.000271
0	3565.020002	0.000561	3684.989996	-0.001085
10	3565.019997	-0.000842	3684.990002	0.000543
20	3565.020002	0.000561	3684.989998	-0.000543
30	3565.020002	0.000561	3684.990002	0.000543
40	3565.019996	-0.001122	3684.990004	0.001085
50	3565.019998	-0.000561	3684.990003	0.000814
55	3565.020004	0.001122	3684.989998	-0.000543

NR n48 SCS 30 kHz, Channel Bandwidth: 40 MHz

Chain 0

Frequency Stability Versus Voltage				
Voltage (Vac)	CH 638000 (3570 MHz)		CH 645332 (3679.98 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
120.0	3569.999997	-0.000840	3679.980003	0.000815
102.0	3570.000003	0.000840	3679.979999	-0.000272
138.0	3570.000001	0.000280	3679.980003	0.000815

Note: The applicant defined the normal working voltage is from 102 to 138 Vac.

Frequency Stability Versus Temperature				
Temperature (°C)	CH 638000 (3570 MHz)		CH 645332 (3679.98 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3570.000001	0.000280	3679.980003	0.000815
-20	3569.999997	-0.000840	3679.980005	0.001359
-10	3570.000003	0.000840	3679.979996	-0.001087
0	3569.999997	-0.000840	3679.979998	-0.000543
10	3570.000003	0.000840	3679.980003	0.000815
20	3570.000002	0.000560	3679.979995	-0.001359
30	3570.000003	0.000840	3679.980004	0.001087
40	3570.000003	0.000840	3679.980001	0.000272
50	3570.000001	0.000280	3679.979997	-0.000815
55	3569.999998	-0.000560	3679.979999	-0.000272

Chain 1

Frequency Stability Versus Voltage				
Voltage (Vac)	CH 638000 (3570 MHz)		CH 645332 (3679.98 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
120.0	3569.999995	-0.001401	3679.980005	0.001359
102.0	3569.999996	-0.001120	3679.980003	0.000815
138.0	3570.000003	0.000840	3679.980001	0.000272

Note: The applicant defined the normal working voltage is from 102 to 138 Vac.

Frequency Stability Versus Temperature				
Temperature (°C)	CH 638000 (3570 MHz)		CH 645332 (3679.98 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3570.000004	0.001120	3679.979999	-0.000272
-20	3569.999996	-0.001120	3679.979997	-0.000815
-10	3570.000001	0.000280	3679.979998	-0.000543
0	3570.000001	0.000280	3679.980001	0.000272
10	3569.999999	-0.000280	3679.980003	0.000815
20	3569.999998	-0.000560	3679.979995	-0.001359
30	3570.000002	0.000560	3679.979999	-0.000272
40	3570.000005	0.001401	3679.979997	-0.000815
50	3569.999999	-0.000280	3679.980003	0.000815
55	3569.999998	-0.000560	3679.979996	-0.001087

8 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo)



9 Information of 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 FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

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

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Web Site: <http://ee.bureauveritas.com.tw>

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

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