

7 RESULT OF RADIATED EMISSION TEST

- 7.1 The frequency range from 30 MHz to 3150 MHz was investigated.
- 7.2 All readings below or equal 1 GHz are quasi-peak or peak values with resolution bandwidth of 120 KHz. The reading of fundamental frequency is peak or average values. With resolution bandwidth of 120KHz.
- 7.3 The measurements were made at 3 meters of HomeTek Lab's open site III.
- 7.4 Temperature : 26 °C, Humidity : 52 % RH.
- 7.5 Deviation form the test standards and rules : None.
- 7.6 Radiated Emission data : **Horizontal**

PRODUCT EMISSIONS AVERAGE DATA 15.231 BANDS								
Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Read Level (dBuV)	ANT Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Detector
* 314.97	70.28	75.60	-5.32	77.95	13.52	2.44	23.63	Average
629.95	51.76	55.60	-3.84	51.93	18.79	3.82	22.78	Average
944.95	51.37	55.60	-4.23	46.76	20.66	5.24	21.29	Average
1259.92	46.62	55.60	-8.98	35.67	23.25	6.32	18.62	Average
1889.90	40.16	55.60	-15.44	19.04	26.73	7.67	13.28	Average

PRODUCT EMISSIONS AVERAGE DATA 15.205 BANDS								
Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Read Level (dBuV)	ANT Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Detector
1574.90	48.86	54.00	-5.14	31.18	25.36	6.95	14.63	Average

PRODUCT EMISSIONS QP DATA 15.209 BANDS								
Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Read Level (dBuV)	ANT Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Detector
154.49	41.19	43.50	-2.31	53.42	10.09	1.71	24.03	QP
472.47	40.06	46.00	-5.94	43.14	16.97	3.22	23.27	QP
787.45	44.71	46.00	-1.29	42.92	19.70	4.27	22.18	QP
1102.44	46.39	54.00	-7.61	38.45	21.94	6.08	20.08	QP
1417.42	49.08	54.00	-4.92	35.49	24.07	6.48	16.96	QP
1732.39	48.22	54.00	-5.78	28.72	25.77	7.25	13.52	QP

* noise floor.

- Emission Level = Read Level – Preamp Factor + ANT Factor + Cable Loss.
- Sample Calculation for 1732.39 MHz .
- Corrected Reading : (28.72) - (13.52) + (25.77) + (7.25) = 48.22 .

7.7 Radiated Emission data : **Vertical**

PRODUCT EMISSIONS AVERAGE DATA 15.231 BANDS								
Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Read Level (dBuV)	ANT Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Detector
* 314.98	65.09	75.60	-10.51	74.93	13.52	2.44	25.80	Average
629.96	50.07	55.60	-5.53	51.84	18.79	3.82	24.38	Average
944.94	49.34	55.60	-6.26	46.67	20.66	5.24	23.23	Average
1259.96	50.70	55.60	-4.90	41.74	23.25	6.32	20.61	Average

PRODUCT EMISSIONS QP DATA 15.209 BANDS								
Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Read Level (dBuV)	ANT Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Detector
157.50	38.48	43.50	-5.02	52.41	10.04	1.72	25.69	QP
472.47	39.84	46.00	-6.16	44.71	16.97	3.22	25.06	QP
787.42	40.55	46.00	-5.45	40.41	19.70	4.27	23.83	QP
1102.44	45.82	54.00	-8.18	39.83	21.94	6.08	22.03	QP

* noise floor.

- Emission Level = Read Level – Preamplifier Factor + ANT Factor + Cable Loss.
- Sample Calculation for 1102.44 MHz .
- Corrected Reading : (39.83) - (22.03) + (21.94) + (6.08) = 45.82 .

REMARK :

1. Model : RC-161+RC-170-110V
2. Measuring mode : 315MHz Mode.
3. “*”, means this frequency is fundamental.
4. Result : **PASSED**

EMISSION BANDWIDTH MEASUREMENT

1 TEST INSTRUMENTS & FACILITIES

The following test Instruments was used during the bandwidth emission test :

Item	Instruments /facilities	Specification	Manufacturer	Model # / S/N#	Date of Cal.
1	EMI TEST RECEIVER	20Hz ~ 26.5GHz	ROHDE & SCHWARZ	ESMI 845442/006	FEB/2006
2	ANTENNA (BI-LOG)	25MHz ~ 2GHz	SCHAFFNER	CBL6112B S/N : 2614	JUN/2006

Note : Item 1~2 were calibrated within period of 1 year.

2 EUT OPERATING CONDITION

2.1 Configure the EUT according to the **ANSI C63.4 - 2003& FCC Part 15.231**.

2.2 15.231(c) The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70MHz and below 900MHz. For devices operating above 900MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

3 TEST PROCEDURE

ANSI C63.4-2003 Occupied Bandwidth Measurements.

(...) The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at either the fundamental frequency or first-order modulation products in all typical modes of operation, including the unmodulated carrier, even if atypical. Once the reference level is established, the equipment is conditioned with typical modulating signals to produce worst-case (i.e., the widest) bandwidth. (...) In order to measure the modulated signal properly, a resolution bandwidth that is small compared to the bandwidth required by the procuring or regulatory agency shall be used on the measuring instrument. However, the 6dB resolution bandwidth of the measuring instrument shall be set to a value greater than 5% of the bandwidth requirements.

4 LIMIT OF BANDWIDTH EMISSION

The 20dB bandwidth limit = $0.0025 * 315\text{MHz} = 0.7875\text{MHz} = 787.5\text{KHz}$.

5 RESULT OF BANDWIDTH EMISSION TEST

5.1 Bandwidth setting of the analyzer: RBW = 10KHz, VBW = 10KHz.

5.2 The measured 20dB bandwidth is: **0.05MHz**.

5.3 The EUT meets the requirements of this section.

5.4 Model: RC-161+RC-170-110V.

5.5 Result: **PASSED**.

