

Job No.: FRANK2018 #186

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Songbird II Radio

Mode: TX 2402MHz(8DPSK)

Model: CR3034A-BH

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

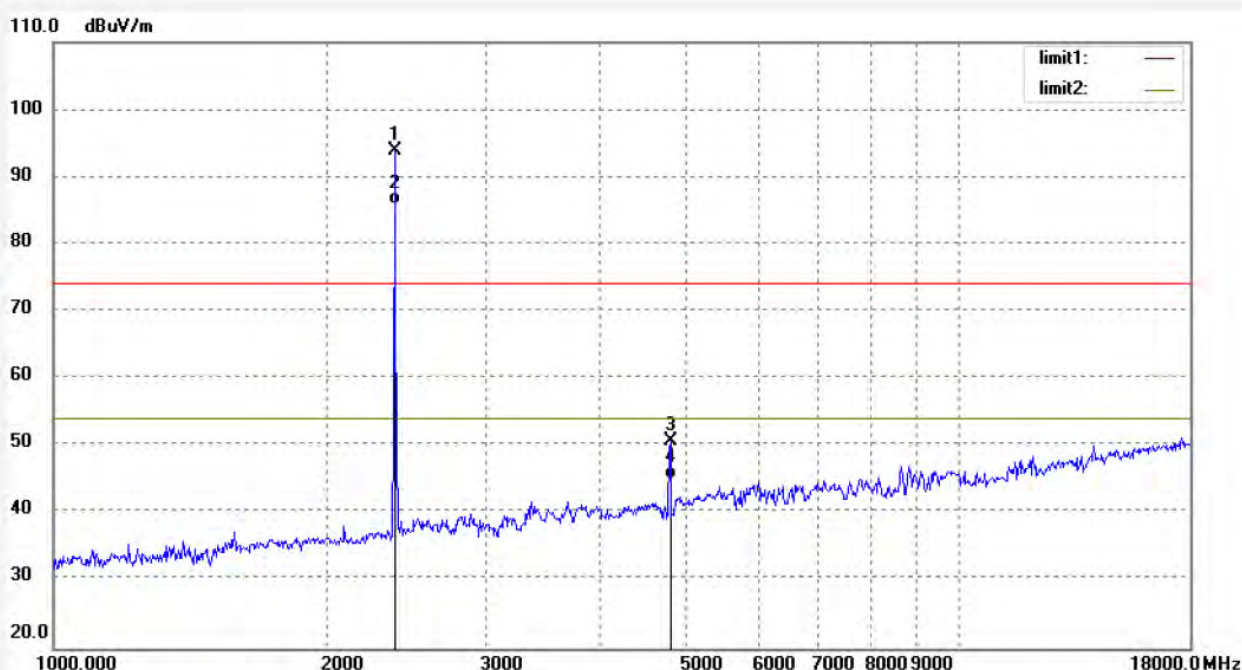
Date: 18/01/13/

Time: 15:29:14

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172583



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.119	98.20	-4.37	93.83			peak	250	123	
2	2402.119	90.15	-4.37	85.78			AVG	200	95	
3	4804.328	47.66	3.00	50.66	74.00	-23.34	peak	200	52	
4	4804.328	42.15	3.00	45.15	54.00	-8.85	AVG	250	164	

Job No.: FRANK2018 #188

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Songbird II Radio

Mode: TX 2441MHz(8DPSK)

Model: CR3034A-BH

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

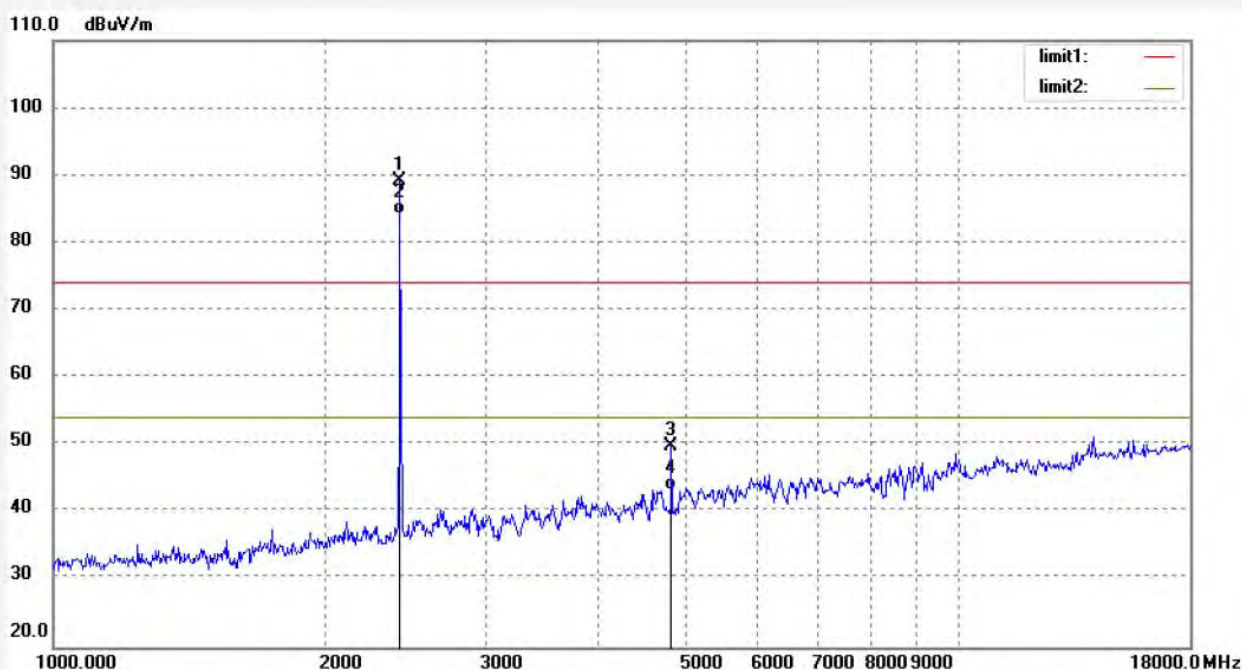
Date: 18/01/13/

Time: 15:31:46

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172583



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2441.121	93.39	-4.20	89.19			peak	250	222	
2	2441.121	88.45	-4.20	84.25			AVG	250	123	
3	4882.324	46.73	3.07	49.80	74.00	-24.20	peak	250	94	
4	4882.324	40.15	3.07	43.22	54.00	-10.78	AVG	250	191	

Job No.: FRANK2018 #187

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Songbird II Radio

Mode: TX 2441MHz(8DPSK)

Model: CR3034A-BH

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

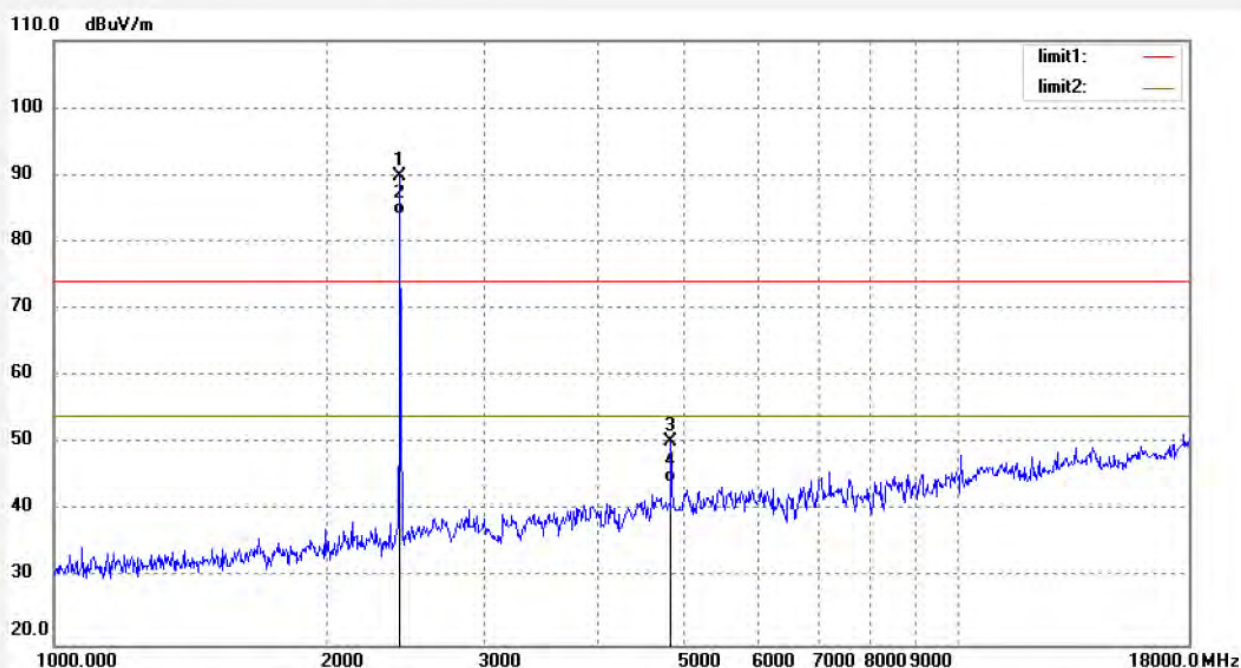
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Time: 15:30:04

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172583



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2441.121	94.03	-4.20	89.83			peak	250	122	
2	2441.121	88.14	-4.20	83.94			AVG	250	97	
3	4882.324	47.18	3.07	50.25	74.00	-23.75	peak	250	26	
4	4882.324	41.15	3.07	44.22	54.00	-9.78	AVG	200	159	

Job No.: FRANK2018 #189

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Songbird II Radio

Mode: TX 2480MHz(8DPSK)

Model: CR3034A-BH

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

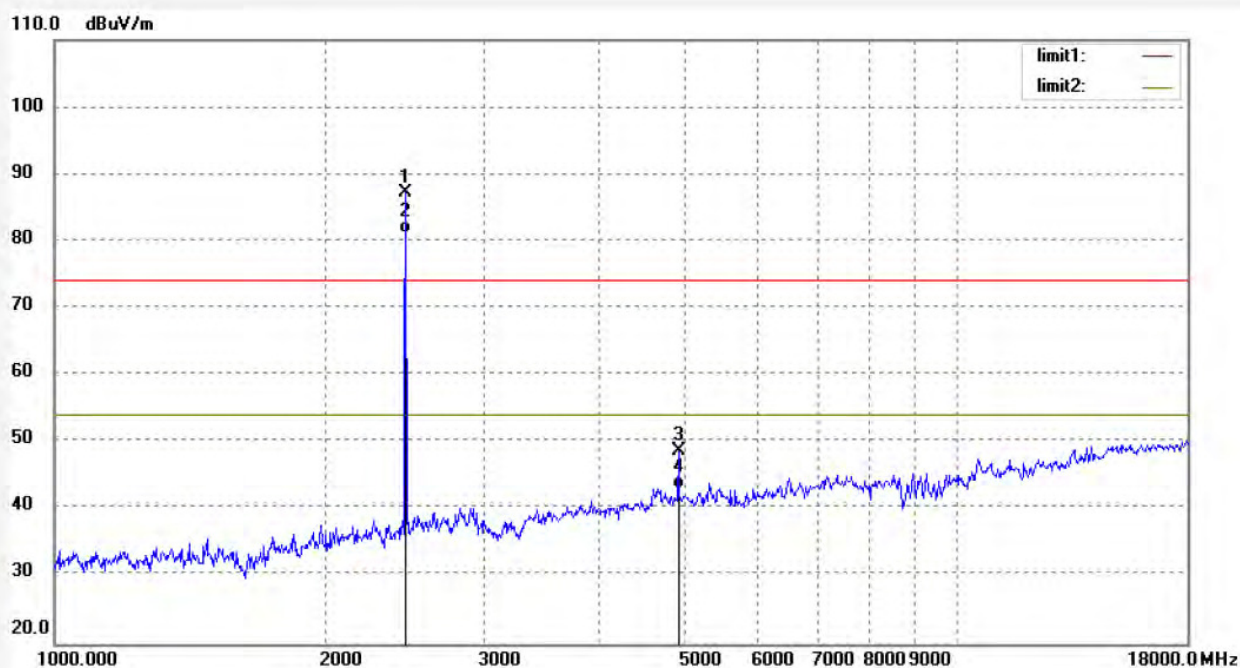
Date: 18/01/13/

Time: 15:33:21

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172583



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.034	91.15	-4.04	87.11			peak	250	123	
2	2480.034	85.15	-4.04	81.11			AVG	250	120	
3	4960.044	45.29	3.50	48.79	74.00	-25.21	peak	250	48	
4	4960.044	39.45	3.50	42.95	54.00	-11.05	AVG	250	156	



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Job No.: FRANK2018 #190

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Songbird II Radio

Mode: TX 2480MHz(8DPSK)

Model: CR3034A-BH

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

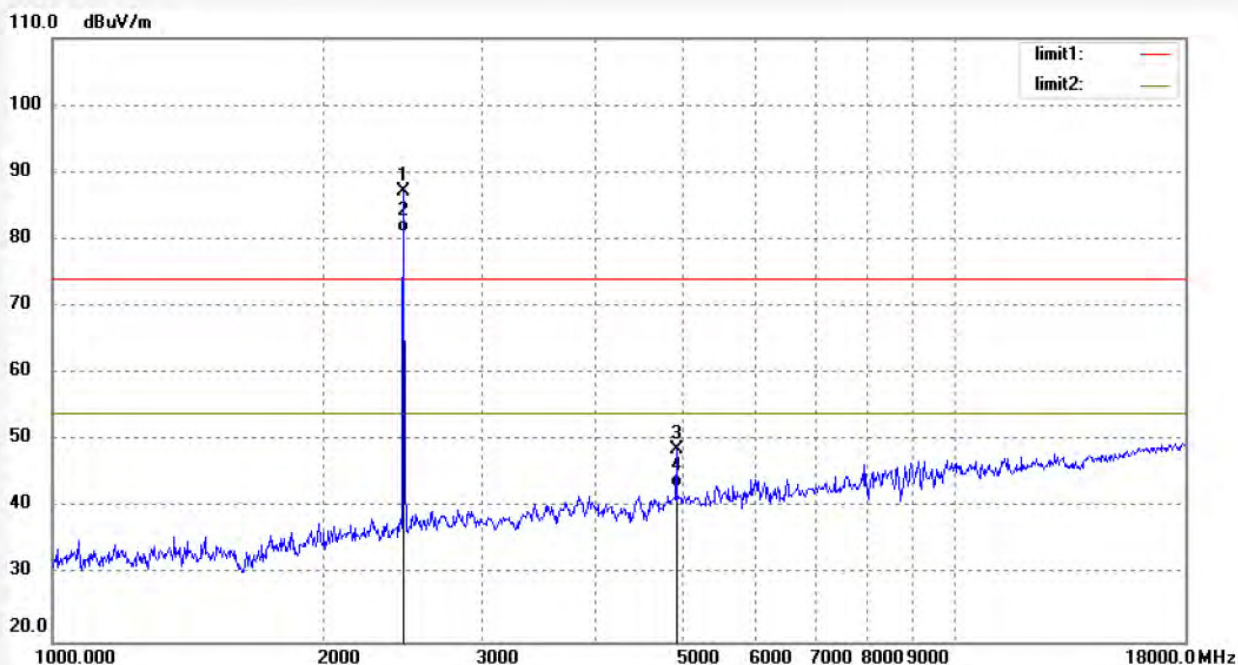
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Time: 15:33:28

Engineer Signature: Frank

Distance: 3m

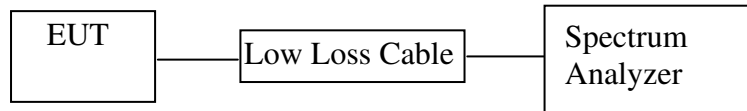
Note: Report NO.:ATE20172583



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.034	91.15	-4.04	87.11			peak	250	154	
2	2480.034	85.12	-4.04	81.08			AVG	250	122	
3	4960.044	45.29	3.50	48.79	74.00	-25.21	peak	250	97	
4	4960.044	39.45	3.50	42.95	54.00	-11.05	AVG	250	215	

11.BAND EDGE COMPLIANCE TEST

11.1.Block Diagram of Test Setup



(EUT: Songbird II Radio)

11.2.The Requirement For Section 15.247(d)

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

11.3.EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

11.4.Operating Condition of EUT

11.4.1.Setup the EUT and simulator as shown as Section 11.1.

11.4.2.Turn on the power of all equipment.

11.4.3.Let the EUT work in TX (Hopping off, Hopping on) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2480MHz TX frequency to transmit.

11.5. Test Procedure

11.5.1. The transmitter output was connected to the spectrum analyzer via a low loss cable.

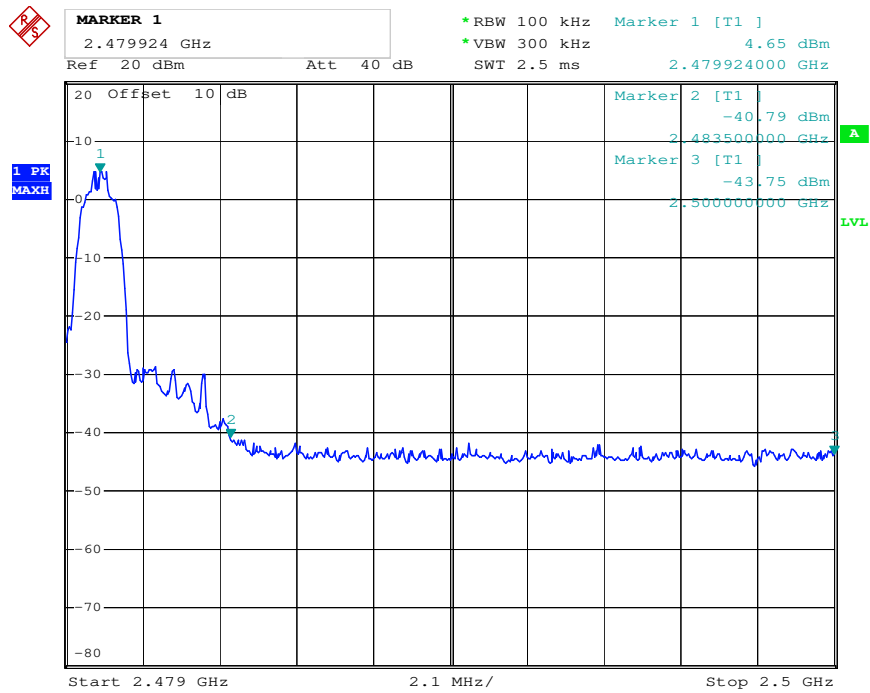
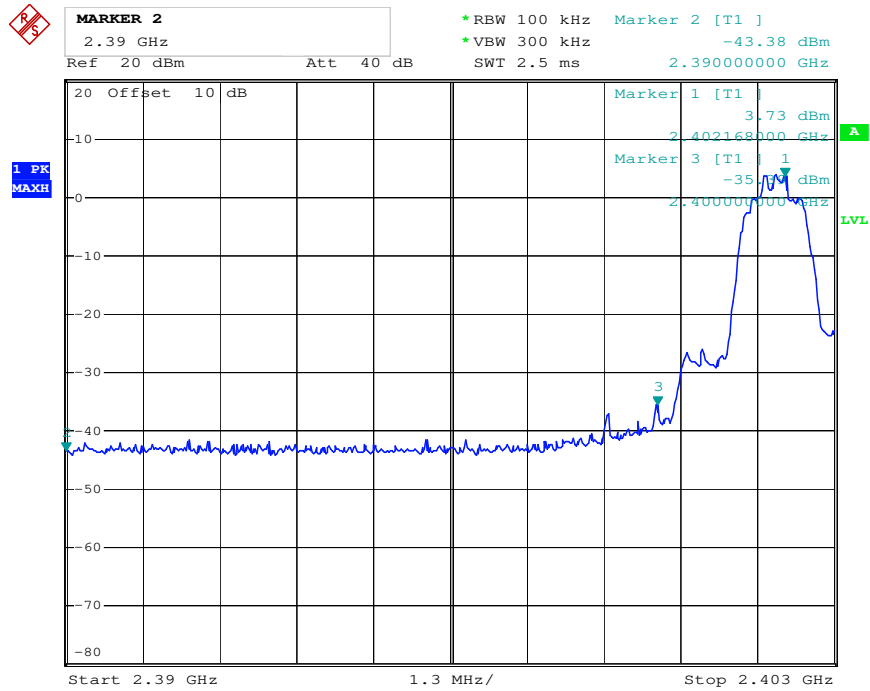
11.5.2. Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz with convenient frequency span including 100 kHz bandwidth from band edge.

11.5.3. The band edges was measured and recorded.

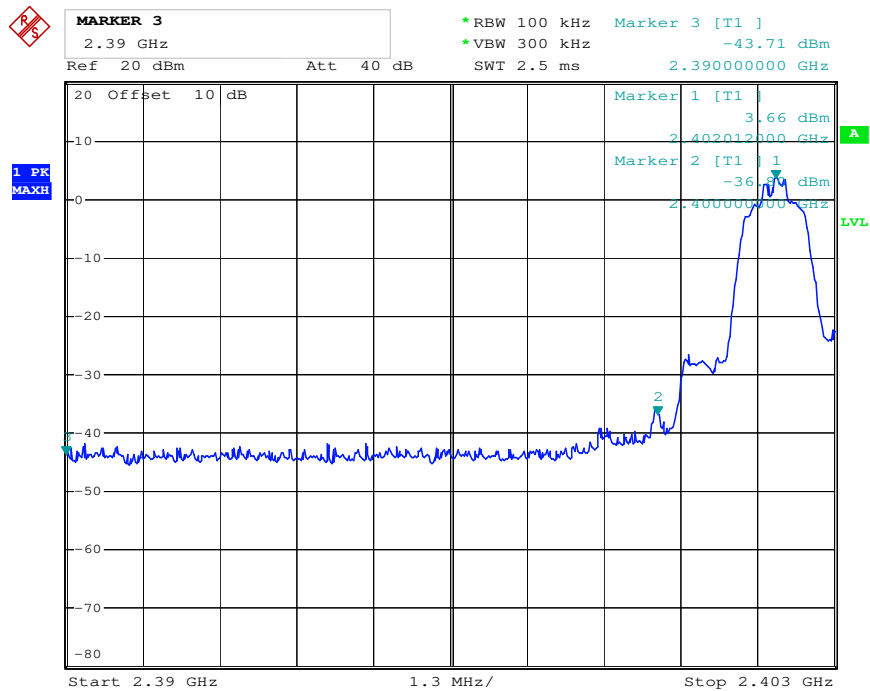
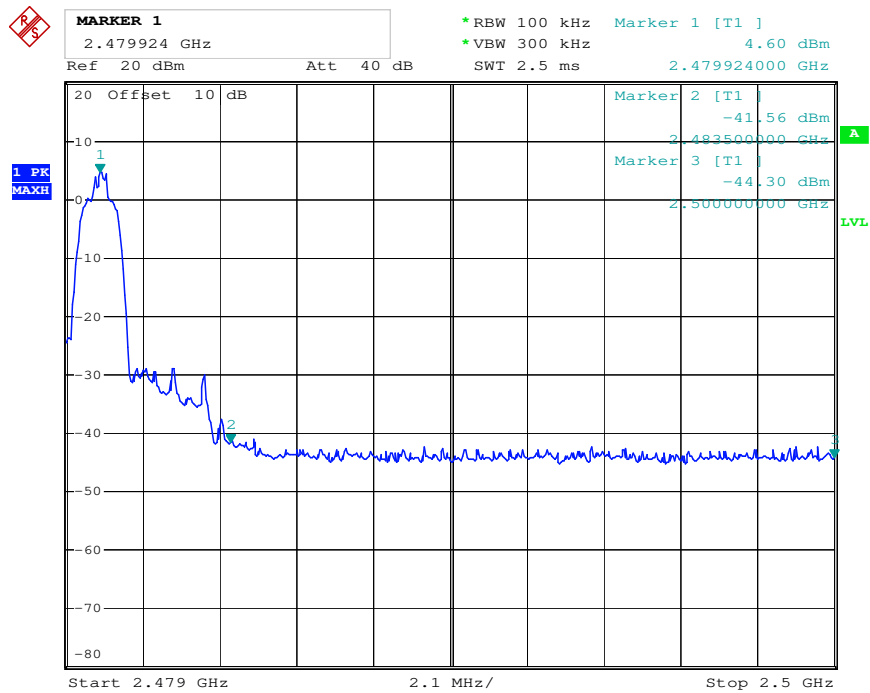
11.6. Test Result

Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
GFSK		
2400.00	31.66	> 20dBc
2483.50	36.14	> 20dBc
$\Pi/4$ DQPSK Mode		
2400.00	33.14	> 20dBc
2483.50	36.96	> 20dBc
8DPSK		
2400.00	33.33	> 20dBc
2483.50	35.04	> 20dBc

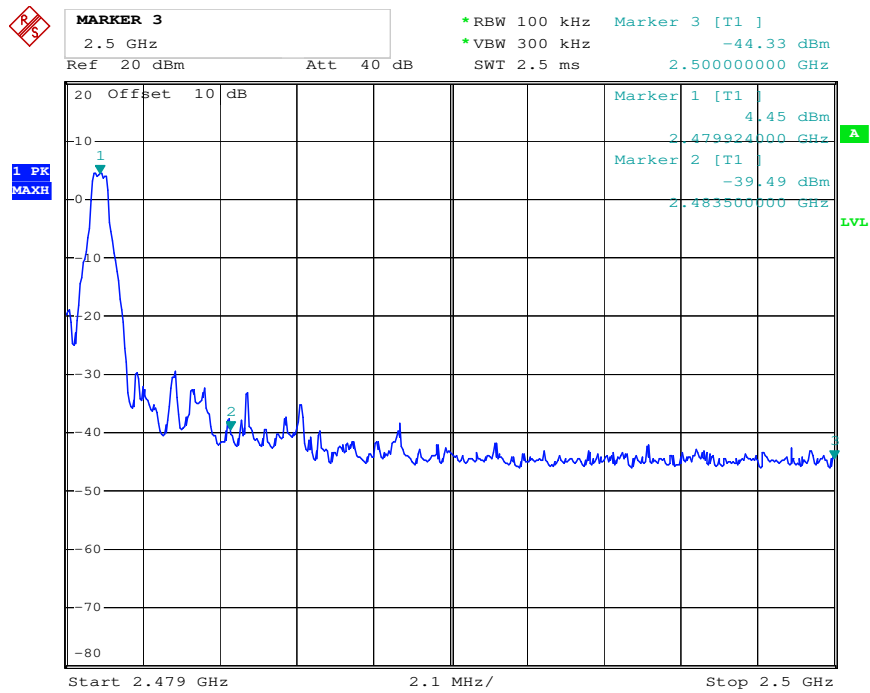
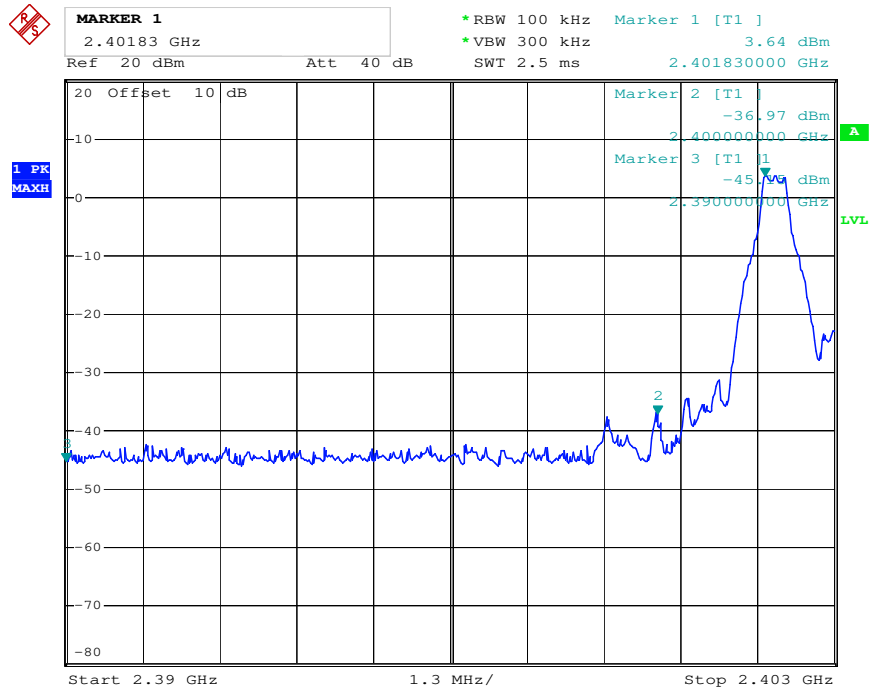
GFSK



Π/4 DQPSK Mode



8DPSK



Radiated Band Edge Result

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

3. Display the measurement of peak values.

Test Procedure:

The EUT and its simulators are placed on a turntable, which is 1.5 meter high above ground(Above 1GHz). The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bi-log antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the EUT location must be manipulated according to ANSI C63.10:2013 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.

Let the EUT work in TX (Hopping off, Hopping on) modes measure it.

We select 2402MHz, 2480MHz TX frequency to transmit(Hopping off mode).

We select 2402-2480MHz TX frequency to transmit(Hopping on mode).

During the radiated emission test, the spectrum analyzer was set with the following configurations:

- 1.The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for peak measurement with peak detector at frequency above 1GHz.
- 2.The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average measurement with peak detection at frequency above 1GHz.
- 3.All modes of operation were investigated and the worst-case emissions are reported.

Non-hopping mode



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Job No.: FRANK2018 #196

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Songbird II Radio

Mode: TX 2402MHz(GFSK)

Model: CR3034A-BH

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

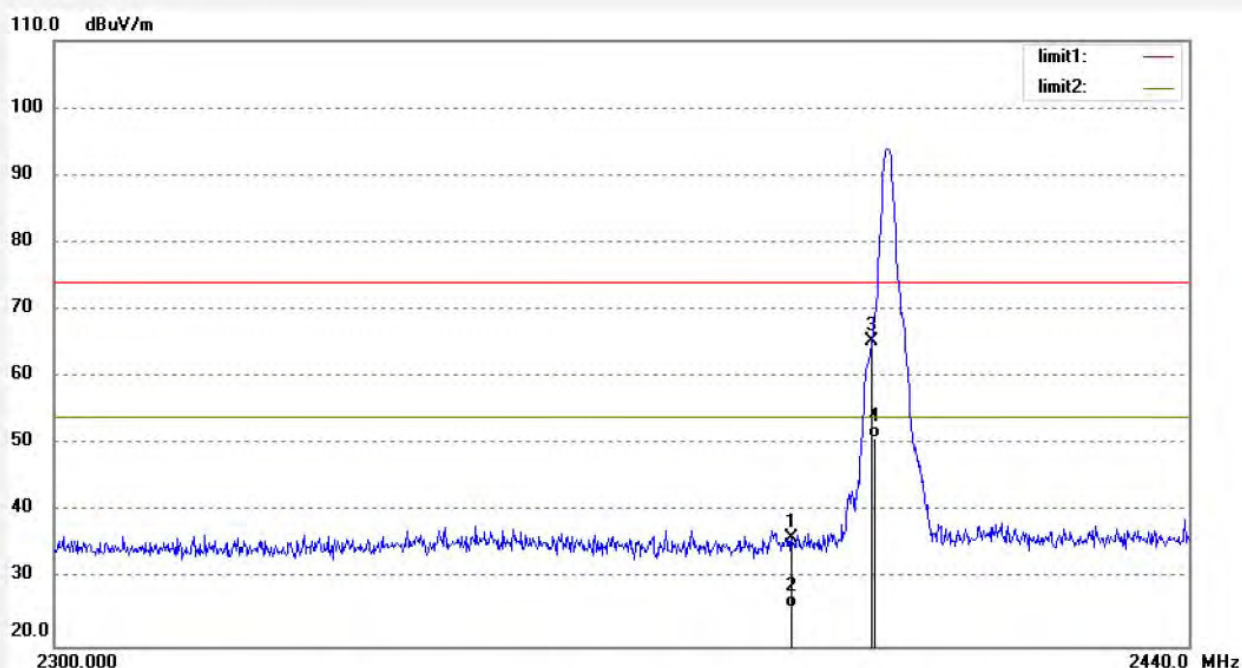
Date: 18/01/13/

Time: 15:42:28

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172583



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	40.31	-4.32	35.99	74.00	-38.01	peak	250	132	
2	2390.000	30.12	-4.32	25.80	54.00	-28.20	AVG	250	185	
3	2400.000	69.53	-4.27	65.26	74.00	-8.74	peak	250	58	
4	2400.000	55.15	-4.27	50.88	54.00	-3.12	AVG	250	241	

Job No.: FRANK2018 #195

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Songbird II Radio

Mode: TX 2402MHz(GFSK)

Model: CR3034A-BH

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

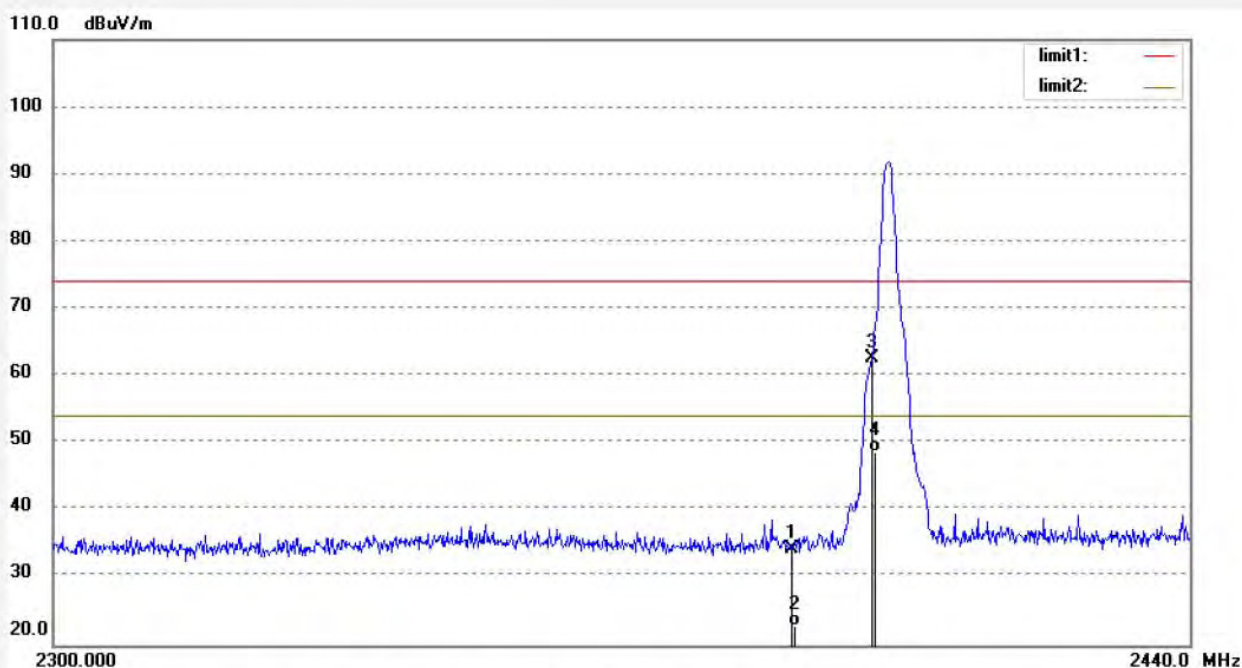
Date: 18/01/13/

Time: 15:41:35

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172583



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	38.70	-4.32	34.38	74.00	-39.62	peak	250	132	
2	2390.000	27.15	-4.32	22.83	54.00	-31.17	AVG	250	97	
3	2400.000	66.96	-4.27	62.69	74.00	-11.31	peak	250	45	
4	2400.000	53.00	-4.27	48.73	54.00	-5.27	AVG	250	102	

Job No.: FRANK2018 #197

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Songbird II Radio

Mode: TX 2480MHz(GFSK)

Model: CR3034A-BH

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

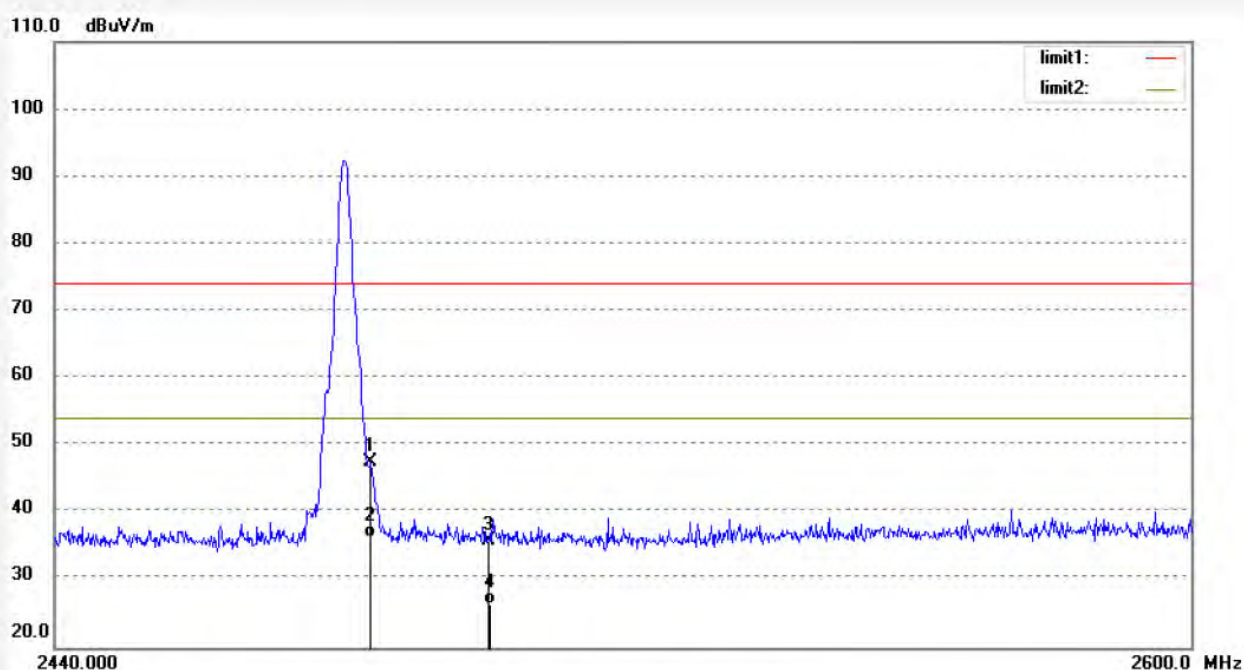
Date: 18/01/13/

Time: 15:43:51

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172583



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	51.44	-3.89	47.55	74.00	-26.45	peak	250	194	
2	2483.500	40.30	-3.89	36.41	54.00	-17.59	AVG	250	259	
3	2500.000	39.66	-3.81	35.85	74.00	-38.15	peak	250	94	
4	2500.000	30.12	-3.81	26.31	54.00	-27.69	AVG	250	267	

Job No.: FRANK2018 #198

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Songbird II Radio

Mode: TX 2480MHz(GFSK)

Model: CR3034A-BH

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

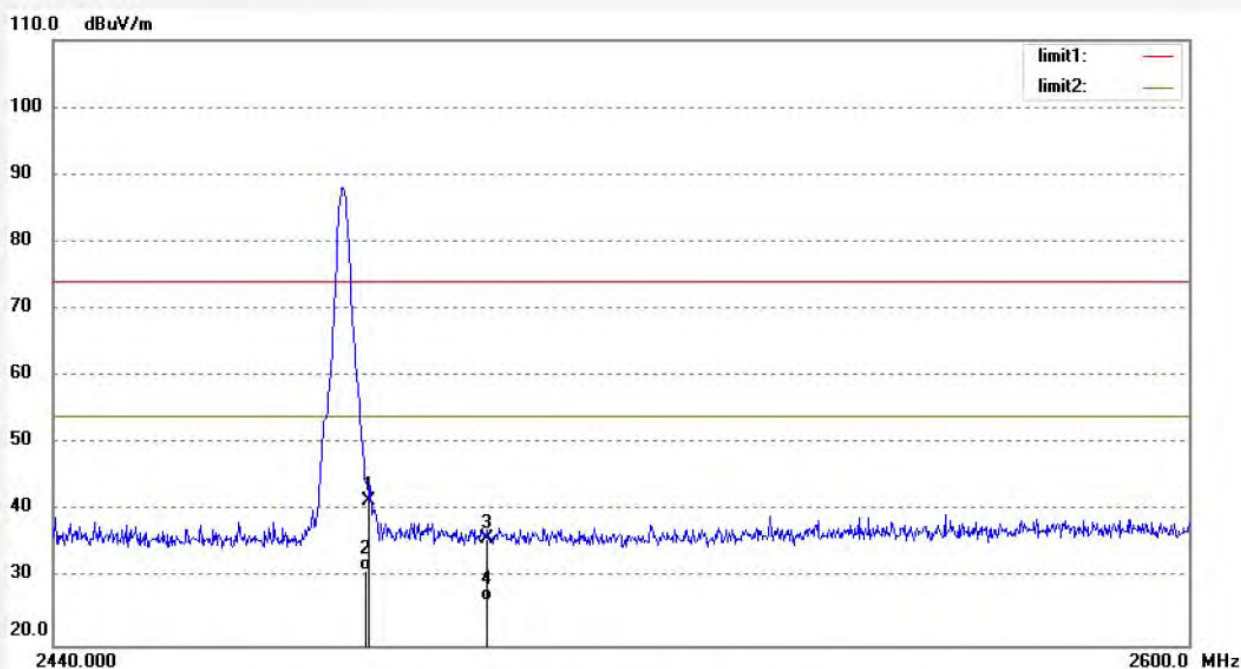
Date: 18/01/13/

Time: 15:44:56

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172583



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	45.27	-3.89	41.38	74.00	-32.62	peak	250	121	
2	2483.500	35.12	-3.89	31.23	54.00	-22.77	AVG	250	321	
3	2500.000	39.66	-3.81	35.85	74.00	-38.15	peak	250	94	
4	2500.000	30.45	-3.81	26.64	54.00	-27.36	AVG	250	204	

Job No.: FRANK2018 #193

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Songbird II Radio

Mode: TX 2402MHz(□/4DQPSK)

Model: CR3034A-BH

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

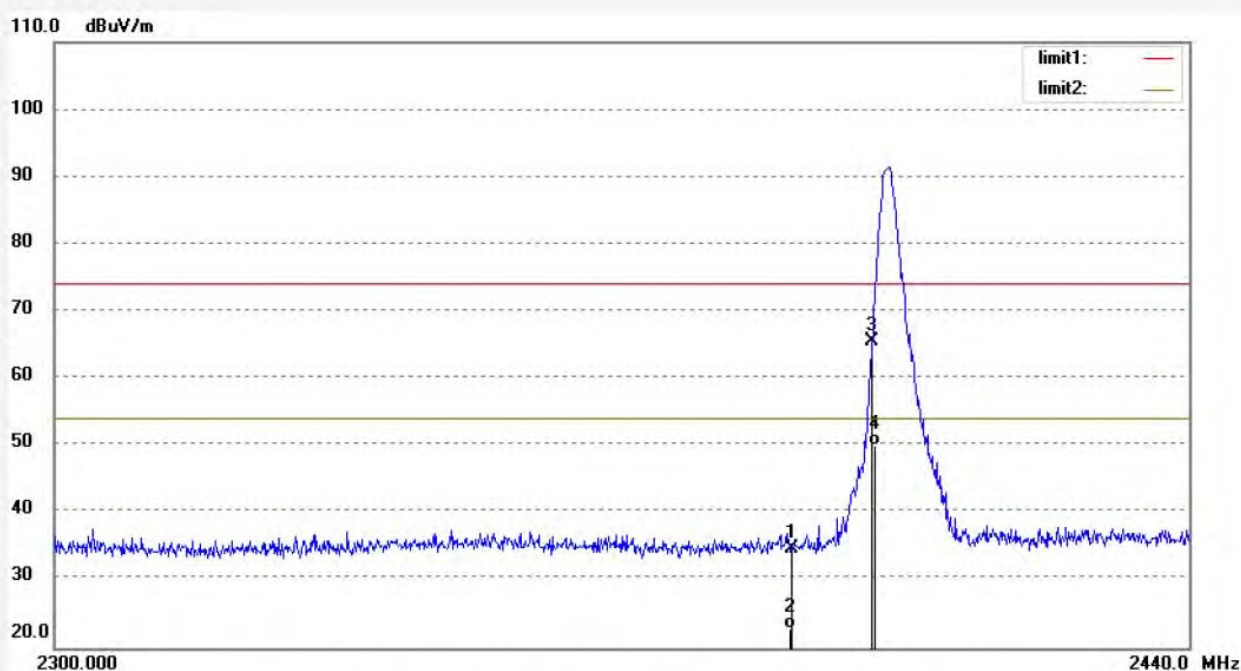
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Time: 15:38:58

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172583



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	38.95	-4.32	34.63	74.00	-39.37	peak	250	210	
2	2390.000	27.15	-4.32	22.83	54.00	-31.17	AVG	250	254	
3	2400.000	69.84	-4.27	65.57	74.00	-8.43	peak	250	108	
4	2400.000	54.23	-4.27	49.96	54.00	-4.04	AVG	250	121	

Job No.: FRANK2018 #194

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Songbird II Radio

Mode: TX 2402MHz(□/4DQPSK)

Model: CR3034A-BH

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

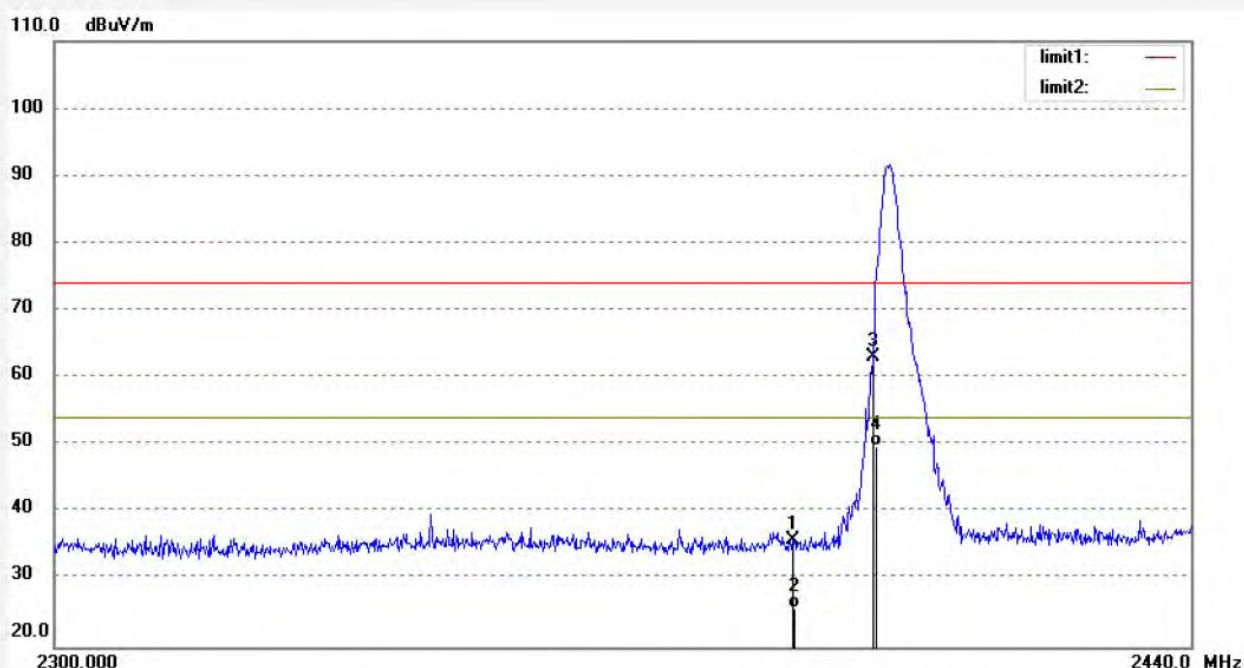
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Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172583



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	40.11	-4.32	35.79	74.00	-38.21	peak	250	122	
2	2390.000	30.00	-4.32	25.68	54.00	-28.32	AVG	250	61	
3	2400.000	67.39	-4.27	63.12	74.00	-10.88	peak	250	109	
4	2400.000	54.00	-4.27	49.73	54.00	-4.27	AVG	250	232	



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Job No.: FRANK2018 #200

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Songbird II Radio

Mode: TX 2480MHz(Π/4DQPSK)

Model: CR3034A-BH

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

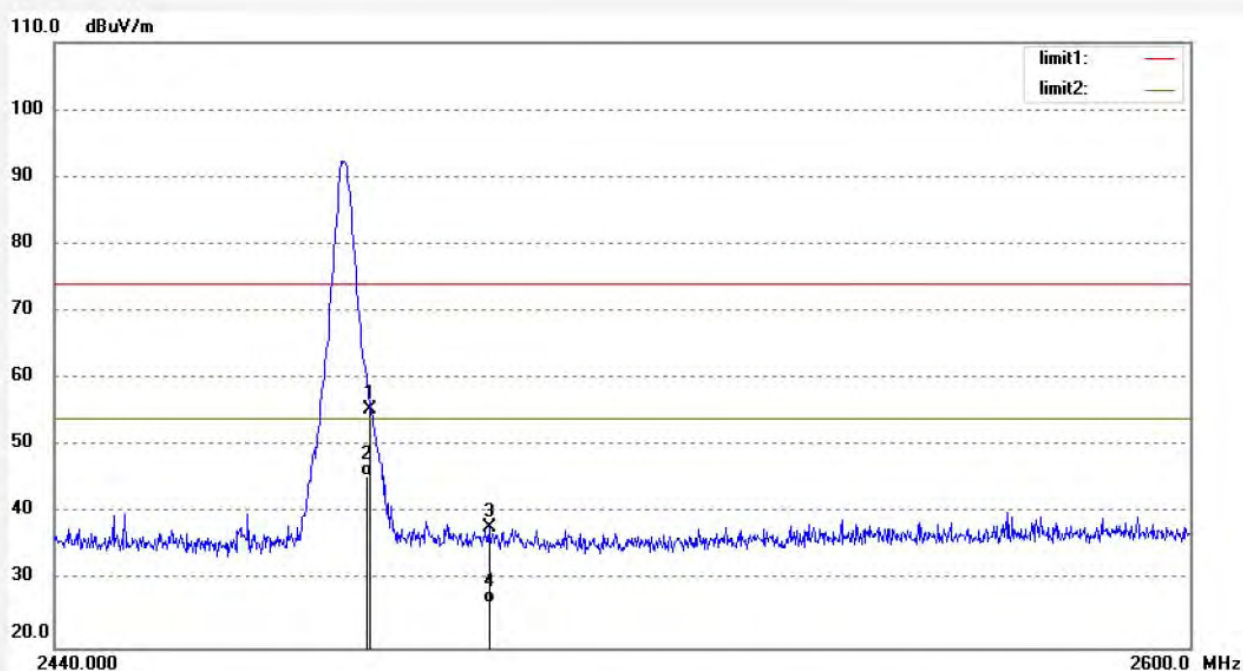
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Time: 15:47:14

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172583



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	59.29	-3.89	55.40	74.00	-18.60	peak	250	123	
2	2483.500	49.48	-3.89	45.59	54.00	-8.41	AVG	250	22	
3	2500.000	41.59	-3.81	37.78	74.00	-36.22	peak	250	167	
4	2500.000	30.48	-3.81	26.67	54.00	-27.33	AVG	250	154	



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Job No.: FRANK2018 #199

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Songbird II Radio

Mode: TX 2480MHz(□/4DQPSK)

Model: CR3034A-BH

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

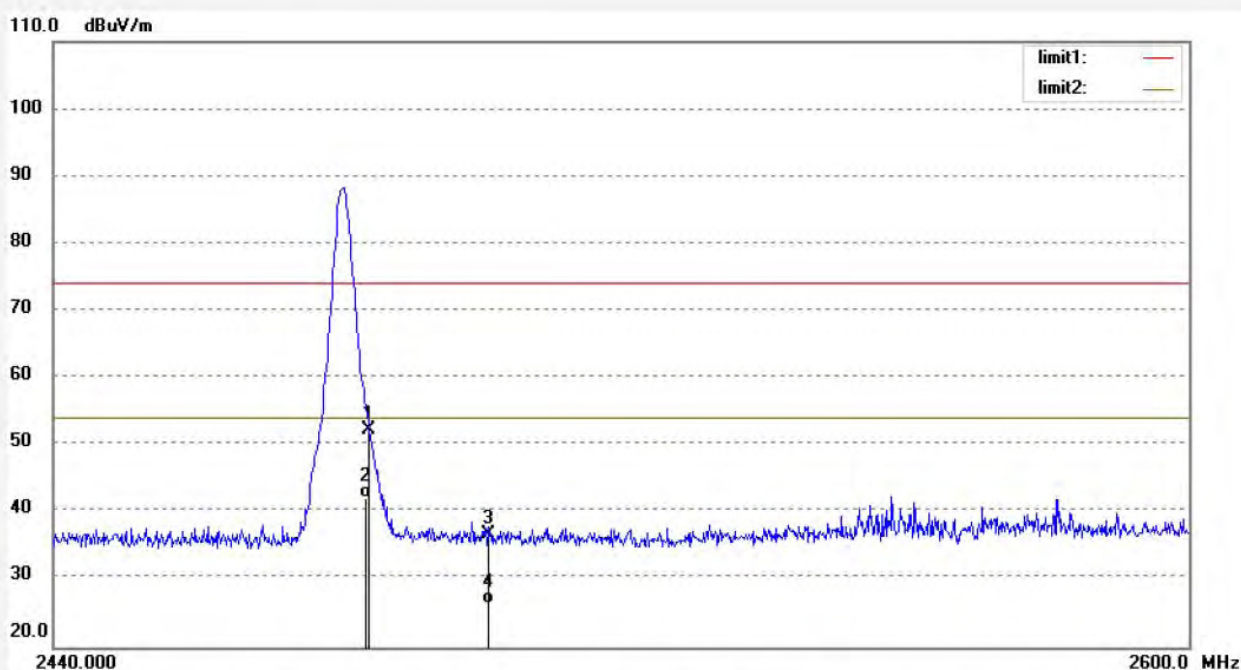
Date: 18/01/13/

Time: 15:46:19

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172583



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	56.27	-3.89	52.38	74.00	-21.62	peak	250	12	
2	2483.500	46.12	-3.89	42.23	54.00	-11.77	AVG	250	103	
3	2500.000	40.48	-3.81	36.67	74.00	-37.33	peak	250	57	
4	2500.000	30.12	-3.81	26.31	54.00	-27.69	AVG	200	124	

Job No.: FRANK2018 #192

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Songbird II Radio

Mode: TX 2402MHz(8DPSK)

Model: CR3034A-BH

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

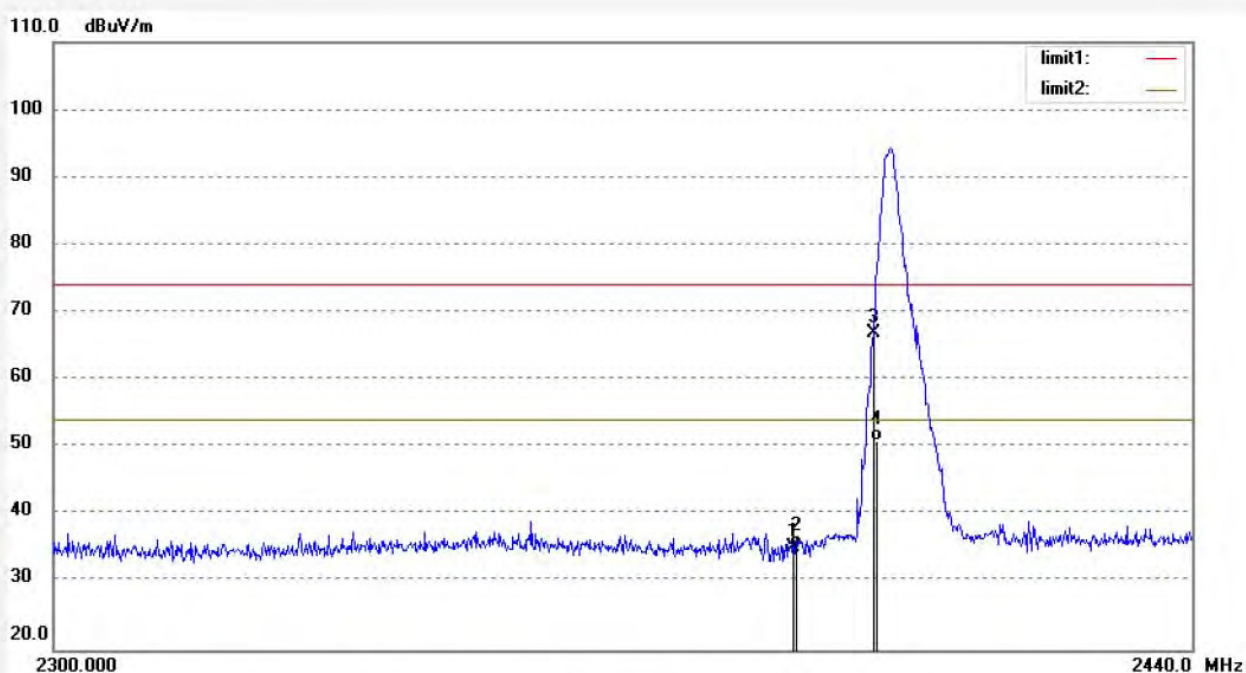
Date: 18/01/13/

Time: 15:37:54

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172583



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	39.40	-4.32	35.08	74.00	-38.92	peak	250	122	
2	2390.000	39.40	-4.32	35.08	54.00	-18.92	AVG	250	84	
3	2400.000	71.24	-4.27	66.97	74.00	-7.03	peak	250	211	
4	2400.000	55.12	-4.27	50.85	54.00	-3.15	AVG	250	100	

Job No.: FRANK2018 #191

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Songbird II Radio

Mode: TX 2402MHz(8DPSK)

Model: CR3034A-BH

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

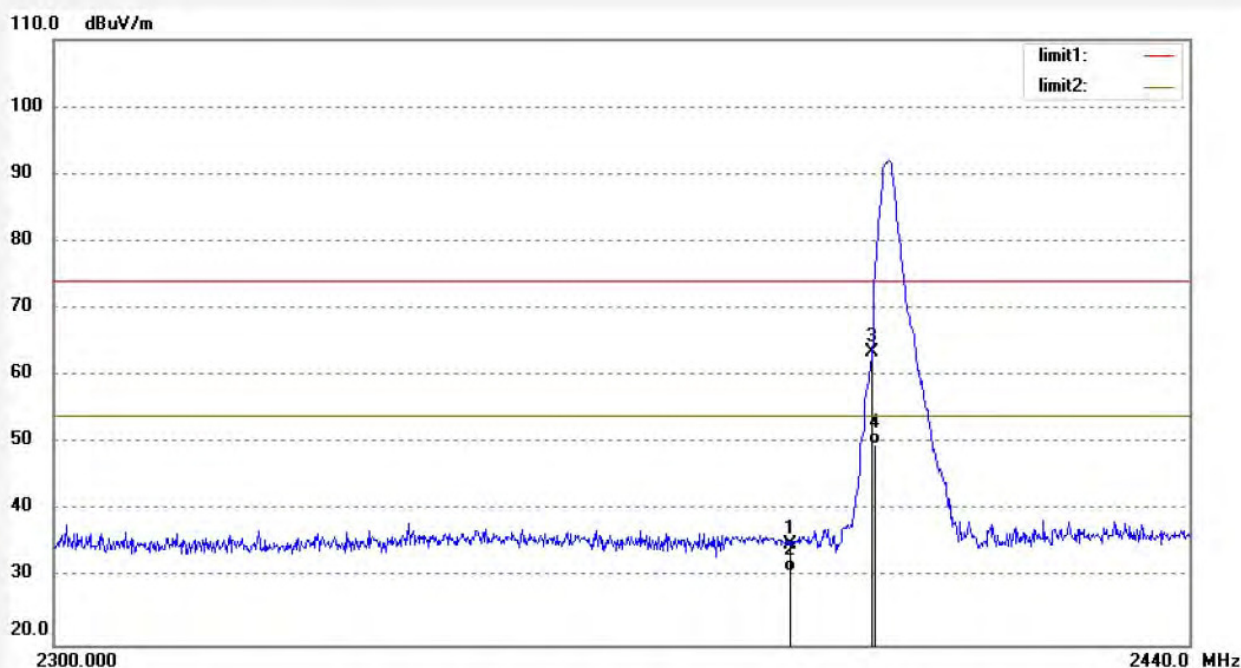
Date: 18/01/13/

Time: 15:36:28

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172583



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	39.31	-4.32	34.99	74.00	-39.01	peak	250	138	
2	2390.000	35.15	-4.32	30.83	54.00	-23.17	AVG	250	214	
3	2400.000	67.71	-4.27	63.44	74.00	-10.56	peak	250	59	
4	2400.000	54.01	-4.27	49.74	54.00	-4.26	AVG	250	211	

Job No.: FRANK2018 #201

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Songbird II Radio

Mode: TX 2480MHz(8DPSK)

Model: CR3034A-BH

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

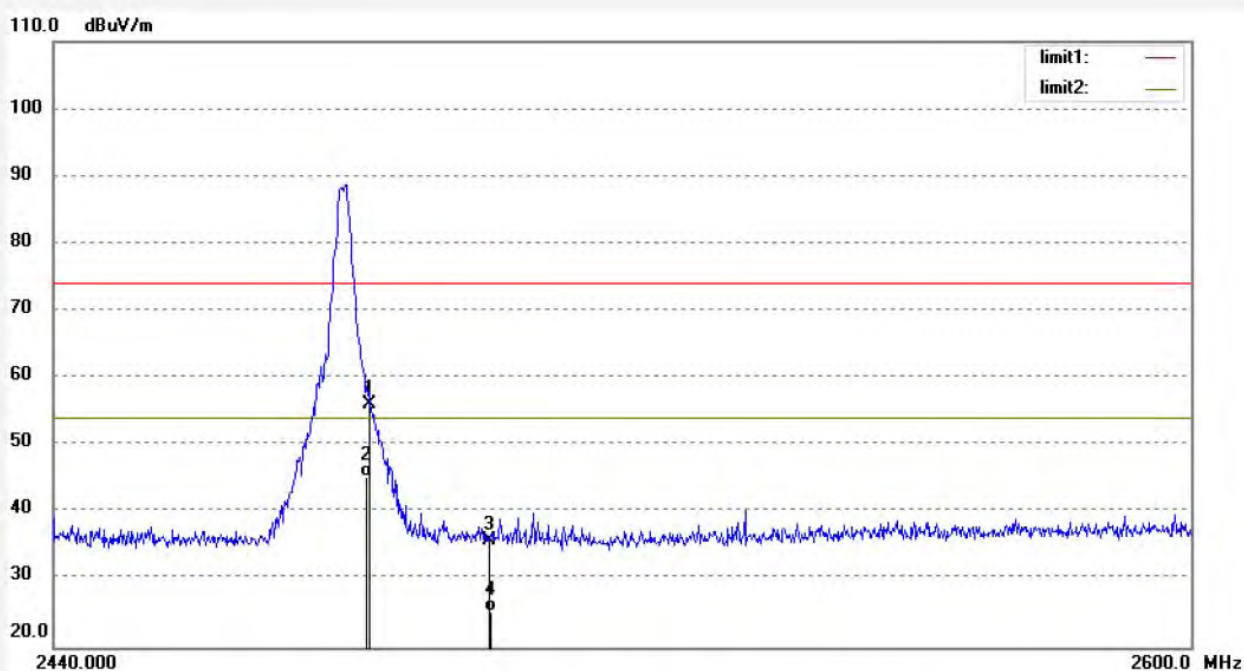
Date: 18/01/13/

Time: 15:48:28

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172583



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	59.97	-3.89	56.08	74.00	-17.92	peak	250	184	
2	2483.500	49.15	-3.89	45.26	54.00	-8.74	AVG	250	19	
3	2500.000	39.62	-3.81	35.81	74.00	-38.19	peak	250	201	
4	2500.000	29.15	-3.81	25.34	54.00	-28.66	AVG	250	215	

Job No.: FRANK2018 #202

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Songbird II Radio

Mode: TX 2480MHz(8DPSK)

Model: CR3034A-BH

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

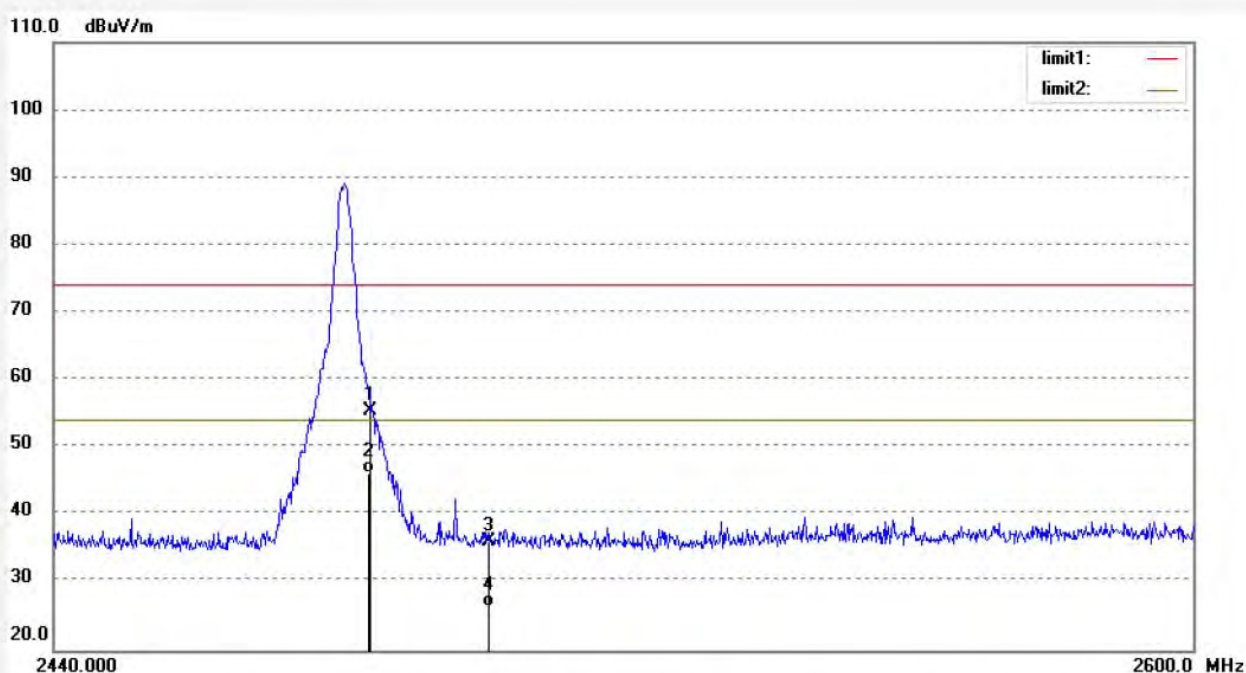
Date: 18/01/13/

Time: 15:49:32

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172583



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	59.28	-3.89	55.39	74.00	-18.61	peak	250	123	
2	2483.500	50.12	-3.89	46.23	54.00	-7.77	AVG	250	225	
3	2500.000	39.96	-3.81	36.15	74.00	-37.85	peak	250	164	
4	2500.000	30.15	-3.81	26.34	54.00	-27.66	AVG	250	92	

Hopping mode



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Job No.: FRANK2018 #204

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Songbird II Radio

Mode: HOPPING(GFSK)

Model: CR3034A-BH

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

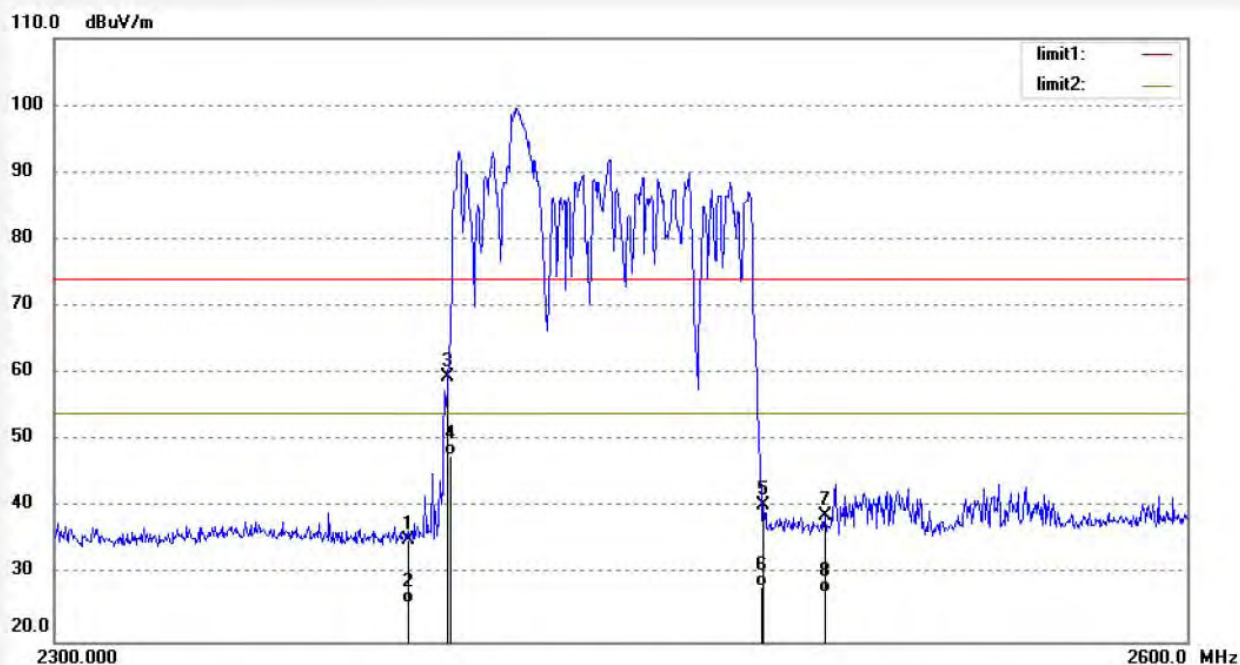
Date: 18/01/13/

Time: 15:55:13

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172583



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	39.40	-4.32	35.08	74.00	-38.92	peak	200	138	
2	2390.000	30.12	-4.32	25.80	54.00	-28.20	AVG	200	94	
3	2400.000	63.70	-4.27	59.43	74.00	-14.57	peak	200	251	
4	2400.000	52.12	-4.27	47.85	54.00	-6.15	AVG	200	103	
5	2483.500	44.19	-3.89	40.30	74.00	-33.70	peak	250	158	
6	2483.500	32.12	-3.89	28.23	54.00	-25.77	AVG	250	149	
7	2500.000	42.57	-3.81	38.76	74.00	-35.24	peak	250	201	
8	2500.000	31.15	-3.81	27.34	54.00	-26.66	AVG	200	321	

Job No.: FRANK2018 #203

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Songbird II Radio

Mode: HOPPING(GFSK)

Model: CR3034A-BH

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

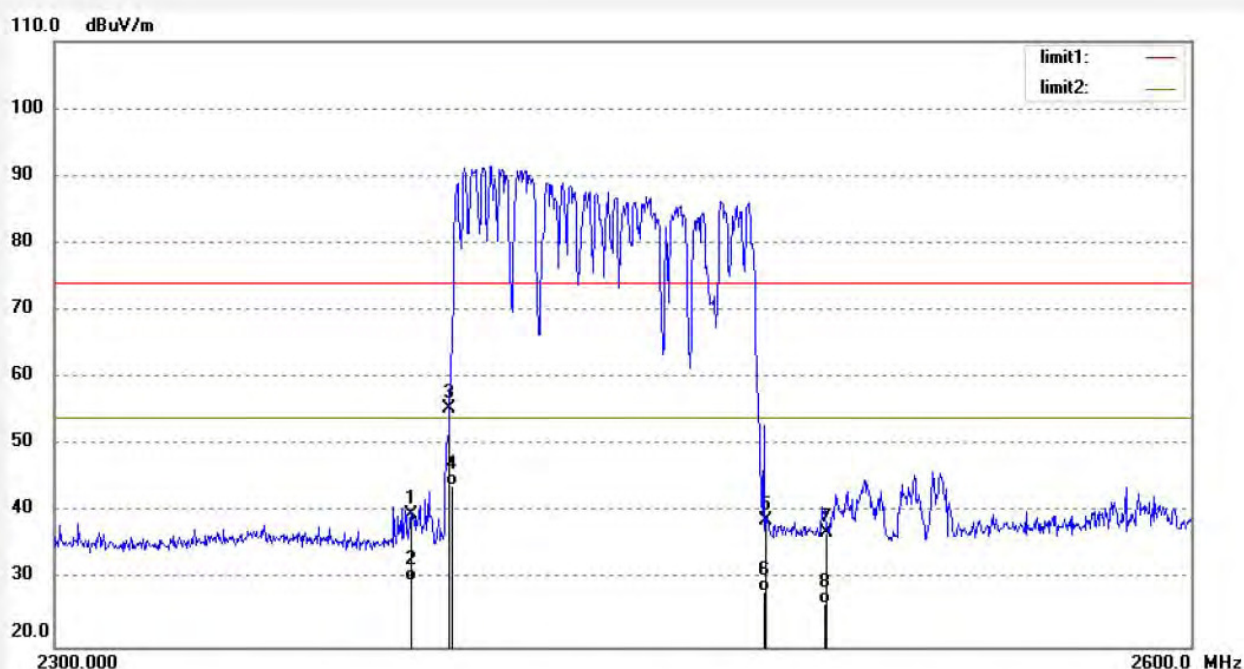
Date: 18/01/13/

Time: 15:52:55

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172583



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	43.95	-4.32	39.63	74.00	-34.37	peak	250	121	
2	2390.000	34.12	-4.32	29.80	54.00	-24.20	AVG	250	13	
3	2400.000	59.68	-4.27	55.41	74.00	-18.59	peak	250	101	
4	2400.000	48.15	-4.27	43.88	54.00	-10.12	AVG	200	127	
5	2483.500	42.62	-3.89	38.73	74.00	-35.27	peak	200	195	
6	2483.500	32.15	-3.89	28.26	54.00	-25.74	AVG	200	125	
7	2500.000	40.83	-3.81	37.02	74.00	-36.98	peak	200	111	
8	2500.000	30.12	-3.81	26.31	54.00	-27.69	AVG	250	320	

Job No.: FRANK2018 #205

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Songbird II Radio

Mode: HOPPING(Π/4DQPSK)

Model: CR3034A-BH

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

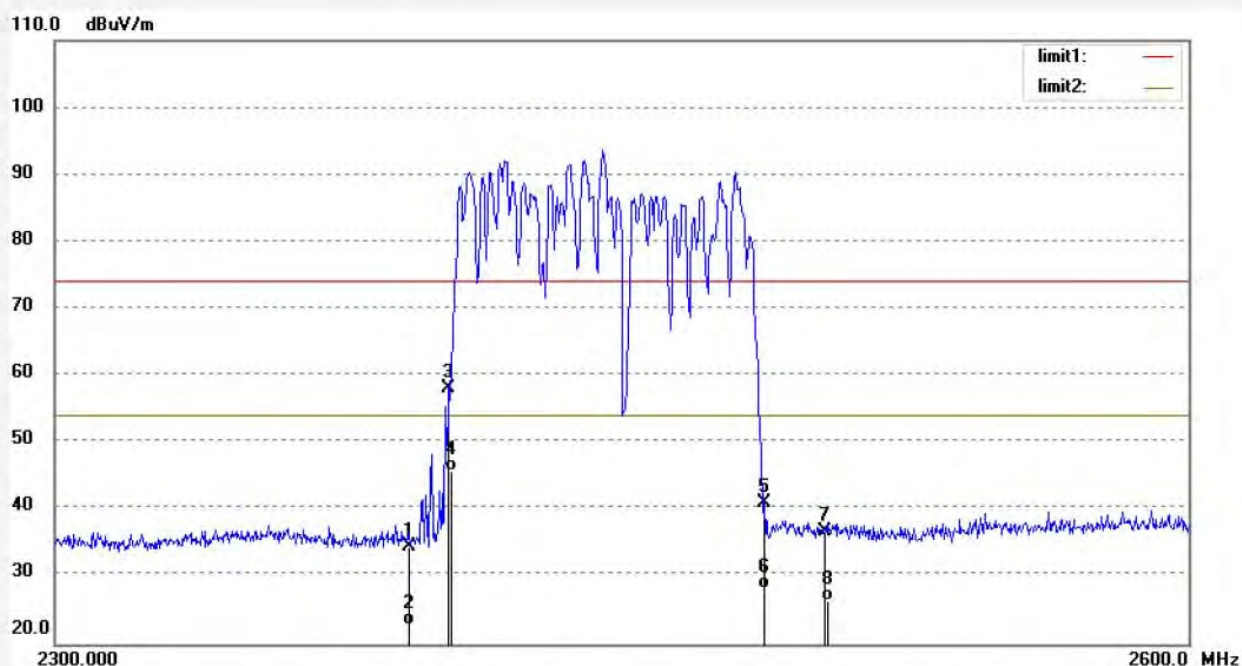
Date: 18/01/13/

Time: 15:57:29

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172583



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	38.87	-4.32	34.55	74.00	-39.45	peak	250	132	
2	2390.000	27.13	-4.32	22.81	54.00	-31.19	AVG	300	195	
3	2400.000	62.30	-4.27	58.03	74.00	-15.97	peak	300	28	
4	2400.000	50.12	-4.27	45.85	54.00	-8.15	AVG	250	312	
5	2483.500	44.90	-3.89	41.01	74.00	-32.99	peak	200	182	
6	2483.500	32.15	-3.89	28.26	54.00	-25.74	AVG	250	97	
7	2500.000	40.61	-3.81	36.80	74.00	-37.20	peak	250	83	
8	2500.000	30.18	-3.81	26.37	54.00	-27.63	AVG	250	156	

Job No.: FRANK2018 #206

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Songbird II Radio

Mode: HOPPING(Π/4DQPSK)

Model: CR3034A-BH

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

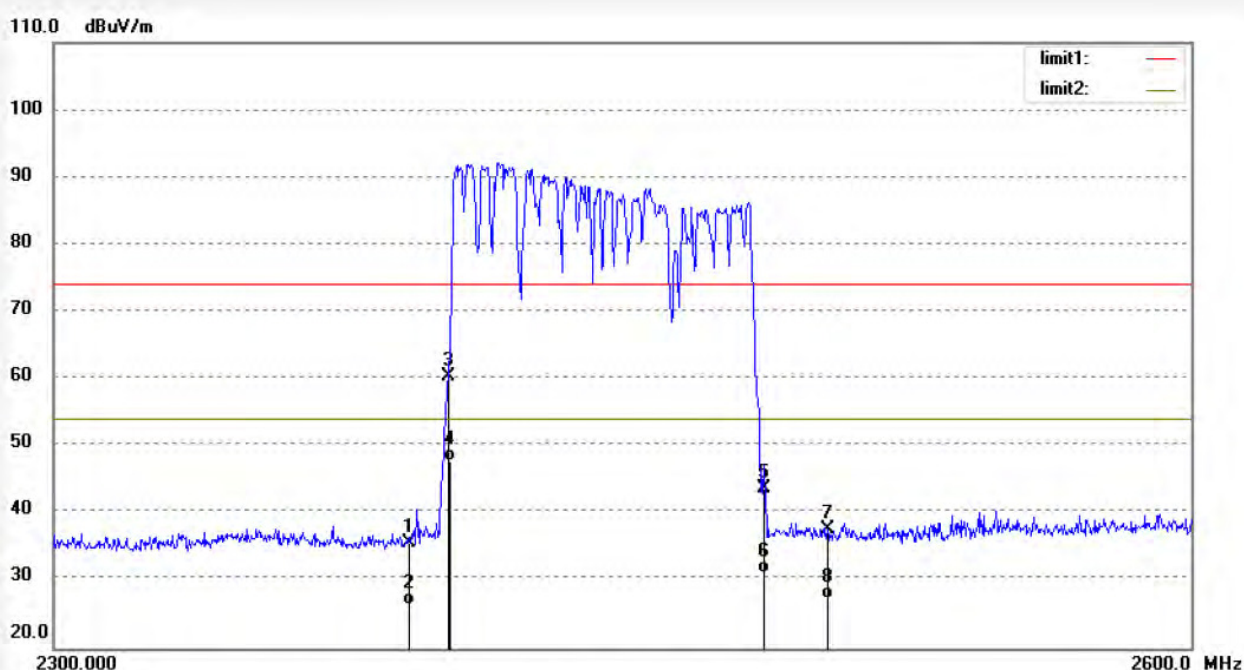
Date: 18/01/13/

Time: 16:00:26

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172583



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	39.85	-4.32	35.53	74.00	-38.47	peak	200	159	
2	2390.000	30.65	-4.32	26.33	54.00	-27.67	AVG	150	138	
3	2400.000	64.60	-4.27	60.33	74.00	-13.67	peak	200	29	
4	2400.000	52.15	-4.27	47.88	54.00	-6.12	AVG	150	101	
5	2483.500	47.57	-3.89	43.68	74.00	-30.32	peak	200	321	
6	2483.500	35.12	-3.89	31.23	54.00	-22.77	AVG	200	168	
7	2500.000	41.42	-3.81	37.61	74.00	-36.39	peak	200	95	
8	2500.000	31.21	-3.81	27.40	54.00	-26.60	AVG	200	112	

Job No.: FRANK2018 #208

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Songbird II Radio

Mode: HOPPING(8DPSK)

Model: CR3034A-BH

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

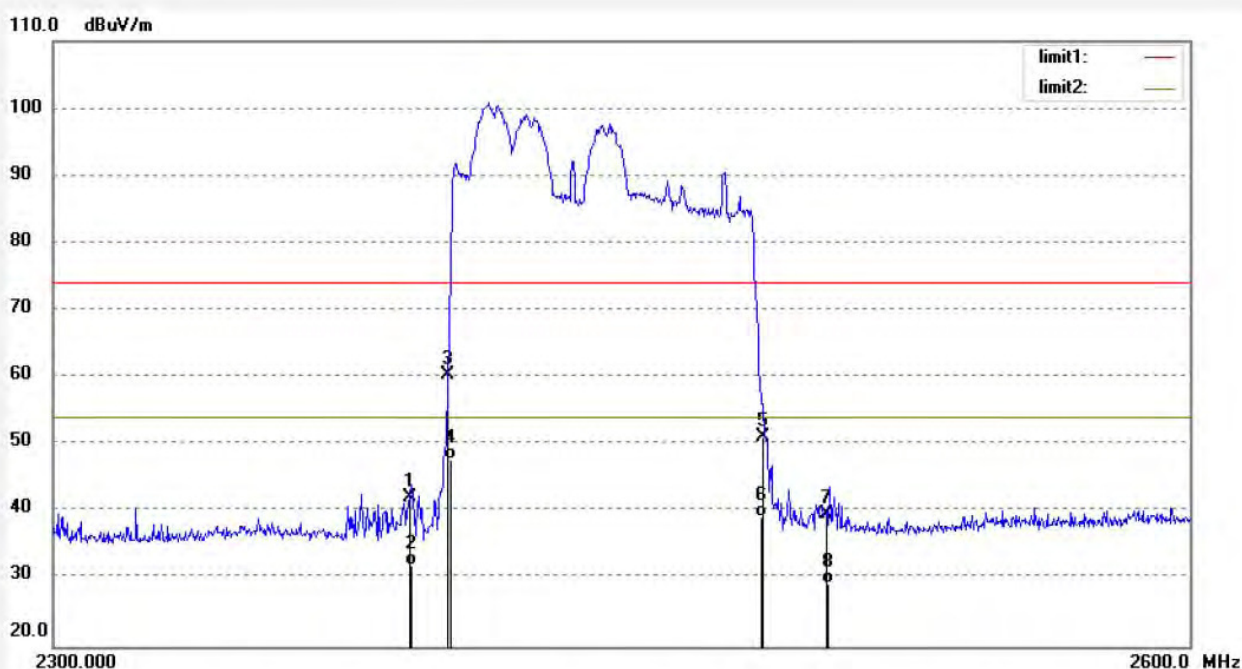
Date: 18/01/13/

Time: 16:15:03

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172583



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	46.50	-4.32	42.18	74.00	-31.82	peak	250	91	
2	2390.000	36.45	-4.32	32.13	54.00	-21.87	AVG	300	147	
3	2400.000	64.65	-4.27	60.38	74.00	-13.62	peak	300	132	
4	2400.000	52.12	-4.27	47.85	54.00	-6.15	AVG	250	154	
5	2483.500	55.07	-3.89	51.18	74.00	-22.82	peak	250	56	
6	2483.500	43.12	-3.89	39.23	54.00	-14.77	AVG	250	54	
7	2500.000	43.54	-3.81	39.73	74.00	-34.27	peak	250	125	
8	2500.000	33.12	-3.81	29.31	54.00	-24.69	AVG	250	214	

Job No.: FRANK2018 #207

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Songbird II Radio

Mode: HOPPING(8DPSK)

Model: CR3034A-BH

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

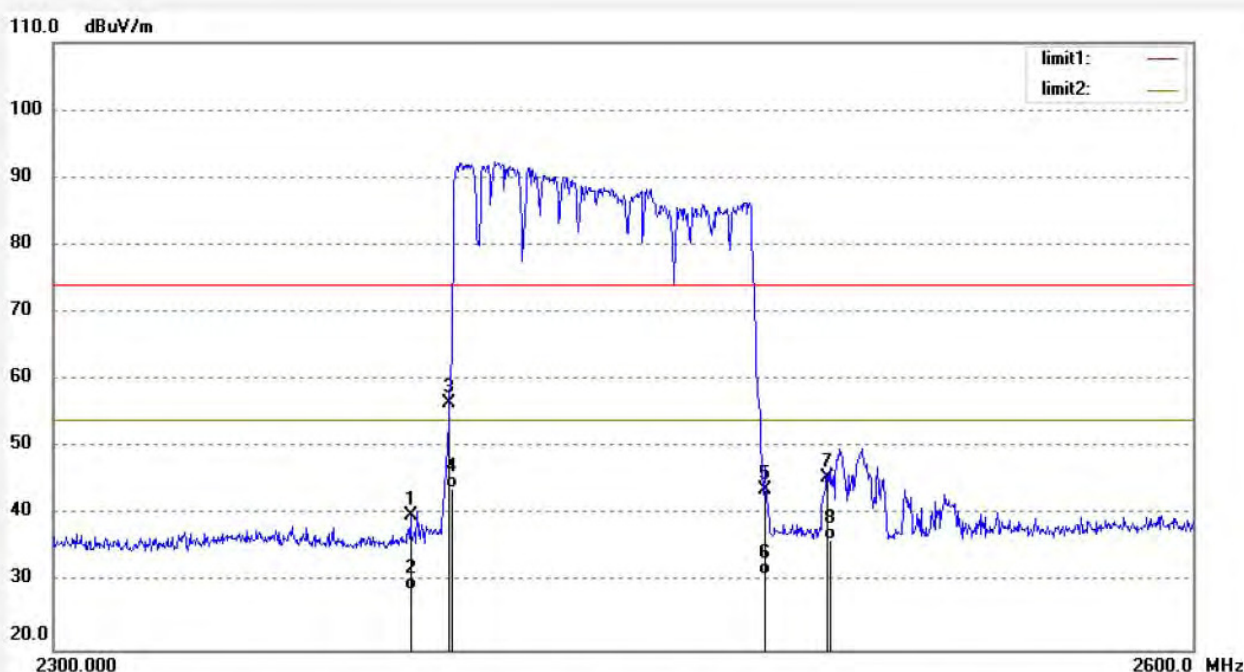
Date: 18/01/13/

Time: 16:02:12

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172583

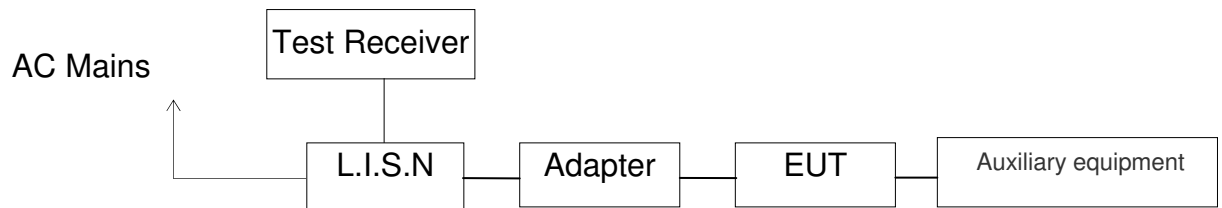


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	44.19	-4.32	39.87	74.00	-34.13	peak	150	270	
2	2390.000	33.15	-4.32	28.83	54.00	-25.17	AVG	150	351	
3	2400.000	60.83	-4.27	56.56	74.00	-17.44	peak	250	75	
4	2400.000	48.15	-4.27	43.88	54.00	-10.12	AVG	250	130	
5	2483.500	47.57	-3.89	43.68	74.00	-30.32	peak	250	91	
6	2483.500	35.12	-3.89	31.23	54.00	-22.77	AVG	250	156	
7	2500.000	49.40	-3.81	45.59	74.00	-28.41	peak	250	150	
8	2500.000	40.12	-3.81	36.31	54.00	-17.69	AVG	250	122	

12.AC POWER LINE CONDUCTED EMISSION FOR FCC PART

15 SECTION 15.207(A)

12.1.Block Diagram of Test Setup



(EUT: Songbird II Radio)

12.2.Power Line Conducted Emission Measurement Limits

Frequency (MHz)	Limit dB(μV)	
	Quasi-peak Level	Average Level
0.15 - 0.50	66.0 – 56.0 *	56.0 – 46.0 *
0.50 - 5.00	56.0	46.0
5.00 - 30.00	60.0	50.0

NOTE1: The lower limit shall apply at the transition frequencies.
 NOTE2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

12.3.Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

12.4.Operating Condition of EUT

12.4.1.Setup the EUT and simulator as shown as Section 12.1.

12.4.2.Turn on the power of all equipment.

12.4.3.Let the EUT work in test mode and measure it.

12.5. Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10: 2013 on Conducted Emission Measurement.

The bandwidth of test receiver (R & S ESCS30) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

12.6. Power Line Conducted Emission Measurement Results

PASS.

The frequency range from 150kHz to 30MHz is checked.

The adapter used in the test is the number 1 adapter

Test mode: BT OPERATION(Worse case)

Test Voltage: 120V/60Hz

MEASUREMENT RESULT: "F2583-9_fin"

1/8/2018 9:42AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.245000	37.80	10.6	62	24.1	QP	L1	GND
0.720000	42.50	10.8	56	13.5	QP	L1	GND
1.490000	38.20	10.9	56	17.8	QP	L1	GND
3.530000	36.20	11.1	56	19.8	QP	L1	GND
5.370000	34.80	11.2	60	25.2	QP	L1	GND
17.605000	29.00	11.4	60	31.0	QP	L1	GND

MEASUREMENT RESULT: "F2583-9_fin2"

1/8/2018 9:42AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.310000	29.00	10.6	50	21.0	AV	L1	GND
0.720000	32.30	10.8	46	13.7	AV	L1	GND
1.465000	28.40	10.9	46	17.6	AV	L1	GND
2.680000	25.20	11.0	46	20.8	AV	L1	GND
5.170000	22.40	11.2	50	27.6	AV	L1	GND
17.785000	16.40	11.4	50	33.6	AV	L1	GND

MEASUREMENT RESULT: "F2583-10_fin"

1/8/2018 9:46AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.345000	33.80	10.6	59	25.3	QP	N	GND
0.720000	40.70	10.8	56	15.3	QP	N	GND
1.865000	31.00	11.0	56	25.0	QP	N	GND
2.180000	30.70	11.0	56	25.3	QP	N	GND
7.580000	26.50	11.2	60	33.5	QP	N	GND
17.950000	28.90	11.4	60	31.1	QP	N	GND

MEASUREMENT RESULT: "F2583-10_fin2"

1/8/2018 9:46AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.345000	23.90	10.6	49	25.2	AV	N	GND
0.720000	34.60	10.8	46	11.4	AV	N	GND
1.415000	25.20	10.9	46	20.8	AV	N	GND
2.880000	21.90	11.0	46	24.1	AV	N	GND
5.200000	20.70	11.2	50	29.3	AV	N	GND
17.935000	13.60	11.4	50	36.4	AV	N	GND

The adapter used in the test is the number 1 adapter
Test mode: BT OPERATION (Worse case)
Test Voltage: 240V/60Hz

MEASUREMENT RESULT: "F2583-8_fin"

1/8/2018 9:38AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.175000	41.20	10.5	65	23.5	QP	L1	GND
0.715000	42.70	10.8	56	13.3	QP	L1	GND
1.250000	37.80	10.9	56	18.2	QP	L1	GND
2.760000	36.00	11.0	56	20.0	QP	L1	GND
5.460000	35.40	11.2	60	24.6	QP	L1	GND
18.145000	28.30	11.4	60	31.7	QP	L1	GND

MEASUREMENT RESULT: "F2583-8_fin2"

1/8/2018 9:38AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.360000	28.50	10.6	49	20.2	AV	L1	GND
0.725000	31.60	10.8	46	14.4	AV	L1	GND
1.475000	26.80	10.9	46	19.2	AV	L1	GND
2.870000	25.10	11.0	46	20.9	AV	L1	GND
5.810000	21.40	11.2	50	28.6	AV	L1	GND
18.385000	17.00	11.4	50	33.0	AV	L1	GND

MEASUREMENT RESULT: "F2583-7_fin"

1/8/2018 9:34AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.300000	34.50	10.6	60	25.7	QP	N	GND
0.715000	40.50	10.8	56	15.5	QP	N	GND
1.320000	28.80	10.9	56	27.2	QP	N	GND
3.170000	30.60	11.1	56	25.4	QP	N	GND
5.610000	27.30	11.2	60	32.7	QP	N	GND
18.310000	28.20	11.4	60	31.8	QP	N	GND

MEASUREMENT RESULT: "F2583-7_fin2"

1/8/2018 9:34AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.345000	22.70	10.6	49	26.4	AV	N	GND
0.715000	34.80	10.8	46	11.2	AV	N	GND
1.570000	25.20	10.9	46	20.8	AV	N	GND
3.540000	23.50	11.1	46	22.5	AV	N	GND
5.130000	20.90	11.2	50	29.1	AV	N	GND
17.785000	13.40	11.4	50	36.6	AV	N	GND

The adapter used in the test is the number 2 adapter

Test mode: BT OPERATION (Worse case)

Test Voltage: 120V/60Hz

MEASUREMENT RESULT: "F2583-12_fin"

1/8/2018 9:55AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.340000	36.30	10.6	59	22.9	QP	L1	GND
0.410000	42.50	10.7	58	15.1	QP	L1	GND
1.065000	33.40	10.9	56	22.6	QP	L1	GND
2.330000	32.40	11.0	56	23.6	QP	L1	GND
5.190000	28.60	11.2	60	31.4	QP	L1	GND
23.995000	28.40	11.5	60	31.6	QP	L1	GND

MEASUREMENT RESULT: "F2583-12_fin2"

1/8/2018 9:55AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.345000	26.50	10.6	49	22.6	AV	L1	GND
0.405000	31.70	10.7	48	16.1	AV	L1	GND
1.330000	26.40	10.9	46	19.6	AV	L1	GND
2.880000	20.60	11.0	46	25.4	AV	L1	GND
5.190000	16.70	11.2	50	33.3	AV	L1	GND
23.995000	19.90	11.5	50	30.1	AV	L1	GND

MEASUREMENT RESULT: "F2583-11_fin"

1/8/2018 9:51AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.200000	37.00	10.5	64	26.6	QP	N	GND
0.410000	37.80	10.7	58	19.8	QP	N	GND
1.185000	29.10	10.9	56	26.9	QP	N	GND
3.260000	27.40	11.1	56	28.6	QP	N	GND
5.420000	23.70	11.2	60	36.3	QP	N	GND
23.995000	24.40	11.5	60	35.6	QP	N	GND

MEASUREMENT RESULT: "F2583-11_fin2"

1/8/2018 9:51AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.330000	24.00	10.6	50	25.5	AV	N	GND
0.405000	30.30	10.7	48	17.5	AV	N	GND
1.170000	21.10	10.9	46	24.9	AV	N	GND
3.060000	18.30	11.1	46	27.7	AV	N	GND
5.390000	15.00	11.2	50	35.0	AV	N	GND
23.995000	15.80	11.5	50	34.2	AV	N	GND

The adapter used in the test is the number 2 adapter
Test mode: BT OPERATION (Worse case)
Test Voltage: 240V/60Hz

MEASUREMENT RESULT: "F2583-13_fin"

1/8/2018 9:59AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.330000	36.40	10.6	60	23.1	QP	L1	GND
0.400000	42.30	10.7	58	15.6	QP	L1	GND
1.275000	36.00	10.9	56	20.0	QP	L1	GND
2.430000	33.40	11.0	56	22.6	QP	L1	GND
5.590000	28.40	11.2	60	31.6	QP	L1	GND
23.995000	28.70	11.5	60	31.3	QP	L1	GND

MEASUREMENT RESULT: "F2583-13_fin2"

1/8/2018 9:59AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.360000	24.80	10.6	49	23.9	AV	L1	GND
0.410000	32.50	10.7	48	15.1	AV	L1	GND
1.780000	24.50	11.0	46	21.5	AV	L1	GND
2.920000	22.00	11.1	46	24.0	AV	L1	GND
5.210000	16.40	11.2	50	33.6	AV	L1	GND
23.995000	19.90	11.5	50	30.1	AV	L1	GND

MEASUREMENT RESULT: "F2583-14_fin"

1/8/2018 10:03AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.295000	30.60	10.6	60	29.8	QP	N	GND
0.405000	37.50	10.7	58	20.3	QP	N	GND
1.335000	29.20	10.9	56	26.8	QP	N	GND
2.760000	27.20	11.0	56	28.8	QP	N	GND
5.450000	22.90	11.2	60	37.1	QP	N	GND
23.995000	23.70	11.5	60	36.3	QP	N	GND

MEASUREMENT RESULT: "F2583-14_fin2"

1/8/2018 10:03AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.350000	23.60	10.6	49	25.4	AV	N	GND
0.410000	29.50	10.7	48	18.1	AV	N	GND
1.305000	20.90	10.9	46	25.1	AV	N	GND
2.910000	18.40	11.0	46	27.6	AV	N	GND
5.130000	15.00	11.2	50	35.0	AV	N	GND
23.995000	14.90	11.5	50	35.1	AV	N	GND

Emissions attenuated more than 20 dB below the permissible value are not reported.

The spectral diagrams are attached as below.

The test data of adapter 1

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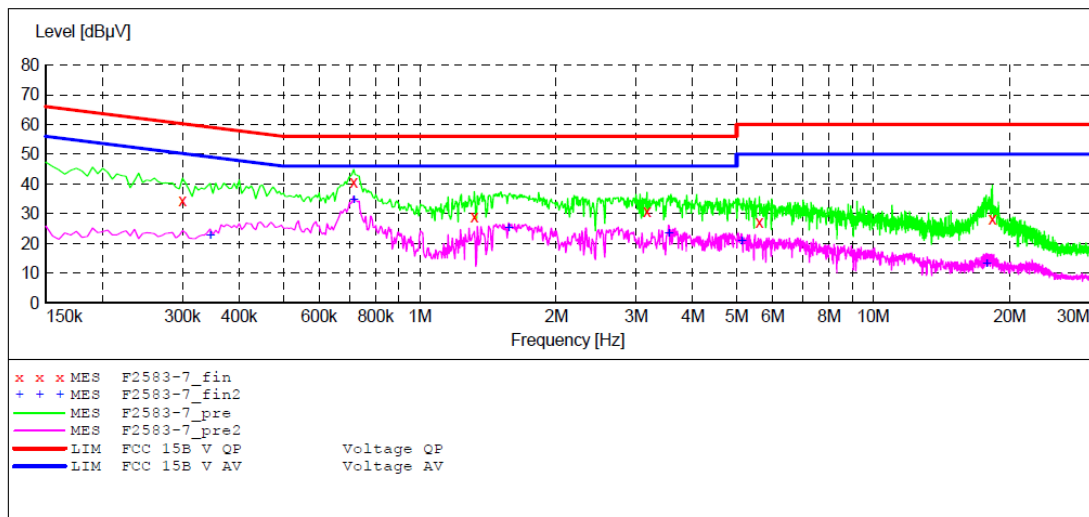
CONDUCTED EMISSION STANDARD FCC PART 15

EUT: Songbird II Radio M/N:CR3034A-BH
 Manufacturer: TIMSEN INTERNATIONAL LIMITED
 Operating Condition: BT OPERATION
 Test Site: 1#Shielding Room
 Operator: Frank
 Test Specification: N 240V/60Hz
 Comment: Report NO.:ATE20172583
 Start of Test: 1/8/2018 / 9:30:56AM

SCAN TABLE: "V 9K-30MHz fin"

Short Description: SUB STD VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	NSLK8126 2008
150.0 kHz	30.0 MHz	5.0 kHz	Average			
			QuasiPeak	1.0 s	9 kHz	NSLK8126 2008
			Average			



MEASUREMENT RESULT: "F2583-7_fin"

1/8/2018 9:34AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.300000	34.50	10.6	60	25.7	QP	N	GND
0.715000	40.50	10.8	56	15.5	QP	N	GND
1.320000	28.80	10.9	56	27.2	QP	N	GND
3.170000	30.60	11.1	56	25.4	QP	N	GND
5.610000	27.30	11.2	60	32.7	QP	N	GND
18.310000	28.20	11.4	60	31.8	QP	N	GND

MEASUREMENT RESULT: "F2583-7_fin2"

1/8/2018 9:34AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.345000	22.70	10.6	49	26.4	AV	N	GND
0.715000	34.80	10.8	46	11.2	AV	N	GND
1.570000	25.20	10.9	46	20.8	AV	N	GND
3.540000	23.50	11.1	46	22.5	AV	N	GND
5.130000	20.90	11.2	50	29.1	AV	N	GND
17.785000	13.40	11.4	50	36.6	AV	N	GND

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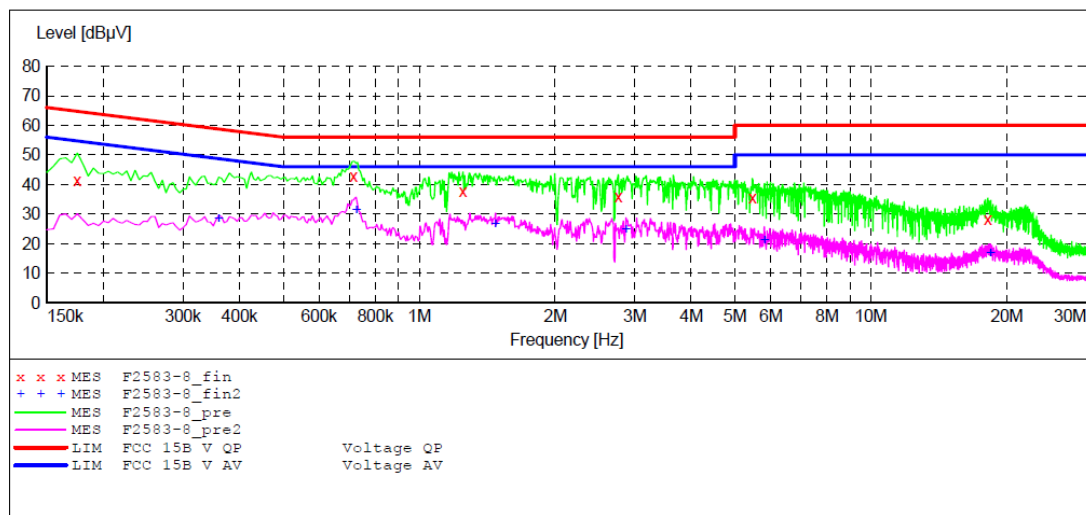
CONDUCTED EMISSION STANDARD FCC PART 15

EUT: Songbird II Radio M/N:CR3034A-BH
 Manufacturer: TIMSEN INTERNATIONAL LIMITED
 Operating Condition: BT OPERATION
 Test Site: 1#Shielding Room
 Operator: Frank
 Test Specification: L 240V/60Hz
 Comment: Report NO.:ATE20172583
 Start of Test: 1/8/2018 / 9:35:01AM

SCAN TABLE: "V 9K-30MHz fin"

Short Description: SUB STD VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	NSLK8126 2008
150.0 kHz	30.0 MHz	5.0 kHz	Average	1.0 s	9 kHz	NSLK8126 2008



MEASUREMENT RESULT: "F2583-8_fin"

1/8/2018 9:38AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.175000	41.20	10.5	65	23.5	QP	L1	GND
0.715000	42.70	10.8	56	13.3	QP	L1	GND
1.250000	37.80	10.9	56	18.2	QP	L1	GND
2.760000	36.00	11.0	56	20.0	QP	L1	GND
5.460000	35.40	11.2	60	24.6	QP	L1	GND
18.145000	28.30	11.4	60	31.7	QP	L1	GND

MEASUREMENT RESULT: "F2583-8_fin2"

1/8/2018 9:38AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.360000	28.50	10.6	49	20.2	AV	L1	GND
0.725000	31.60	10.8	46	14.4	AV	L1	GND
1.475000	26.80	10.9	46	19.2	AV	L1	GND
2.870000	25.10	11.0	46	20.9	AV	L1	GND
5.810000	21.40	11.2	50	28.6	AV	L1	GND
18.385000	17.00	11.4	50	33.0	AV	L1	GND

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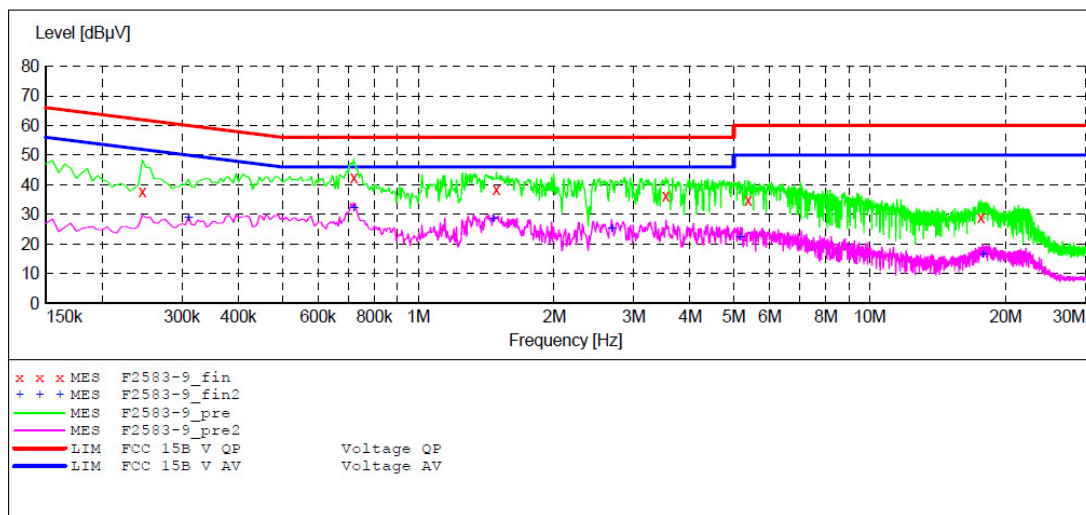
CONDUCTED EMISSION STANDARD FCC PART 15

EUT: Songbird II Radio M/N:CR3034A-BH
 Manufacturer: TIMSEN INTERNATIONAL LIMITED
 Operating Condition: BT OPERATION
 Test Site: 1#Shielding Room
 Operator: Frank
 Test Specification: L 120V/60Hz
 Comment: Report NO.:ATE20172583
 Start of Test: 1/8/2018 / 9:38:51AM

SCAN TABLE: "V 9K-30MHz fin"

Short Description: SUB STD VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	NSLK8126 2008
150.0 kHz	30.0 MHz	5.0 kHz	Average	1.0 s	9 kHz	NSLK8126 2008



MEASUREMENT RESULT: "F2583-9_fin"

1/8/2018 9:42AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.245000	37.80	10.6	62	24.1	QP	L1	GND
0.720000	42.50	10.8	56	13.5	QP	L1	GND
1.490000	38.20	10.9	56	17.8	QP	L1	GND
3.530000	36.20	11.1	56	19.8	QP	L1	GND
5.370000	34.80	11.2	60	25.2	QP	L1	GND
17.605000	29.00	11.4	60	31.0	QP	L1	GND

MEASUREMENT RESULT: "F2583-9_fin2"

1/8/2018 9:42AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.310000	29.00	10.6	50	21.0	AV	L1	GND
0.720000	32.30	10.8	46	13.7	AV	L1	GND
1.465000	28.40	10.9	46	17.6	AV	L1	GND
2.680000	25.20	11.0	46	20.8	AV	L1	GND
5.170000	22.40	11.2	50	27.6	AV	L1	GND
17.785000	16.40	11.4	50	33.6	AV	L1	GND

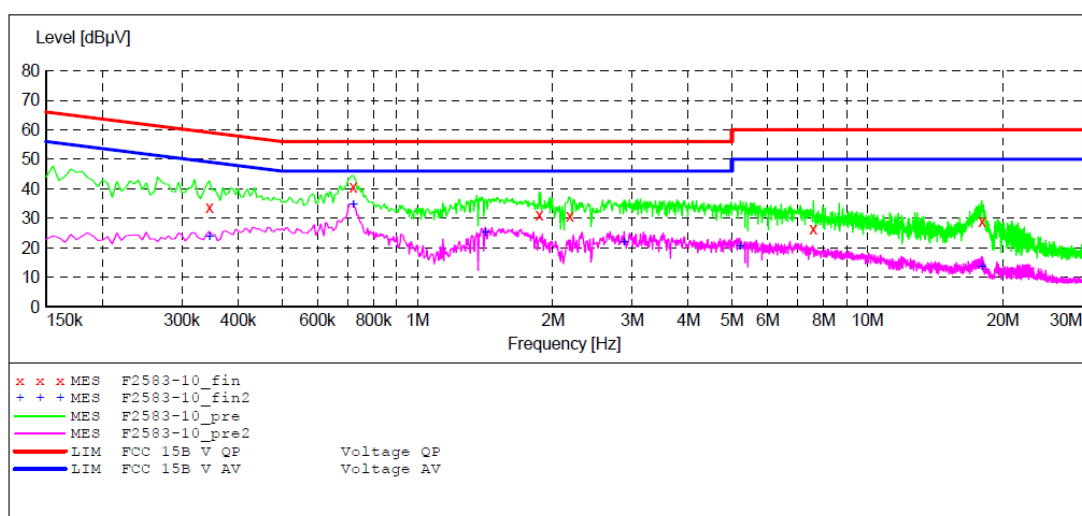
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15

EUT: Songbird II Radio M/N:CR3034A-BH
 Manufacturer: TIMSEN INTERNATIONAL LIMITED
 Operating Condition: BT OPERATION
 Test Site: 1#Shielding Room
 Operator: Frank
 Test Specification: N 120V/60Hz
 Comment: Report NO.:ATE20172583
 Start of Test: 1/8/2018 / 9:42:52AM

SCAN TABLE: "V 9K-30MHz fin"

Short Description: SUB STD VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 9.0 kHz 150.0 kHz 100.0 Hz QuasiPeak 1.0 s 200 Hz NSLK8126 2008
 Average
 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "F2583-10_fin"

1/8/2018 9:46AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.345000	33.80	10.6	59	25.3	QP	N	GND
0.720000	40.70	10.8	56	15.3	QP	N	GND
1.865000	31.00	11.0	56	25.0	QP	N	GND
2.180000	30.70	11.0	56	25.3	QP	N	GND
7.580000	26.50	11.2	60	33.5	QP	N	GND
17.950000	28.90	11.4	60	31.1	QP	N	GND

MEASUREMENT RESULT: "F2583-10_fin2"

1/8/2018 9:46AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.345000	23.90	10.6	49	25.2	AV	N	GND
0.720000	34.60	10.8	46	11.4	AV	N	GND
1.415000	25.20	10.9	46	20.8	AV	N	GND
2.880000	21.90	11.0	46	24.1	AV	N	GND
5.200000	20.70	11.2	50	29.3	AV	N	GND
17.935000	13.60	11.4	50	36.4	AV	N	GND

The test data of adapter 2

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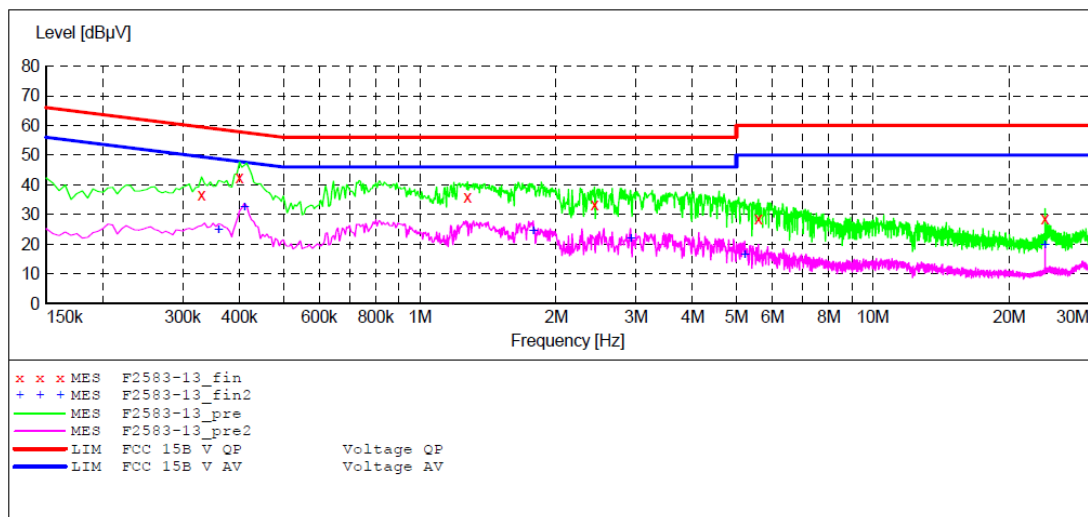
CONDUCTED EMISSION STANDARD FCC PART 15

EUT: Songbird II Radio M/N:CR3034A-BH
 Manufacturer: TIMSEN INTERNATIONAL LIMITED
 Operating Condition: BT OPERATION
 Test Site: 1#Shielding Room
 Operator: Frank
 Test Specification: L 240V/60Hz
 Comment: Report NO.:ATE20172583

SCAN TABLE: "V 9K-30MHz fin"

Short Description: SUB STD VTERM2 1.70

Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
Frequency 9.0 kHz	Frequency 150.0 kHz	Width 100.0 Hz	QuasiPeak	1.0 s	200 Hz	NSLK8126 2008
150.0 kHz	30.0 MHz	5.0 kHz	Average	QuasiPeak 1.0 s	9 kHz	NSLK8126 2008
			Average			



MEASUREMENT RESULT: "F2583-13_fin"

1/8/2018 9:59AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.330000	36.40	10.6	60	23.1	QP	L1	GND
0.400000	42.30	10.7	58	15.6	QP	L1	GND
1.275000	36.00	10.9	56	20.0	QP	L1	GND
2.430000	33.40	11.0	56	22.6	QP	L1	GND
5.590000	28.40	11.2	60	31.6	QP	L1	GND
23.995000	28.70	11.5	60	31.3	QP	L1	GND

MEASUREMENT RESULT: "F2583-13_fin2"

1/8/2018 9:59AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.360000	24.80	10.6	49	23.9	AV	L1	GND
0.410000	32.50	10.7	48	15.1	AV	L1	GND
1.780000	24.50	11.0	46	21.5	AV	L1	GND
2.920000	22.00	11.1	46	24.0	AV	L1	GND
5.210000	16.40	11.2	50	33.6	AV	L1	GND
23.995000	19.90	11.5	50	30.1	AV	L1	GND

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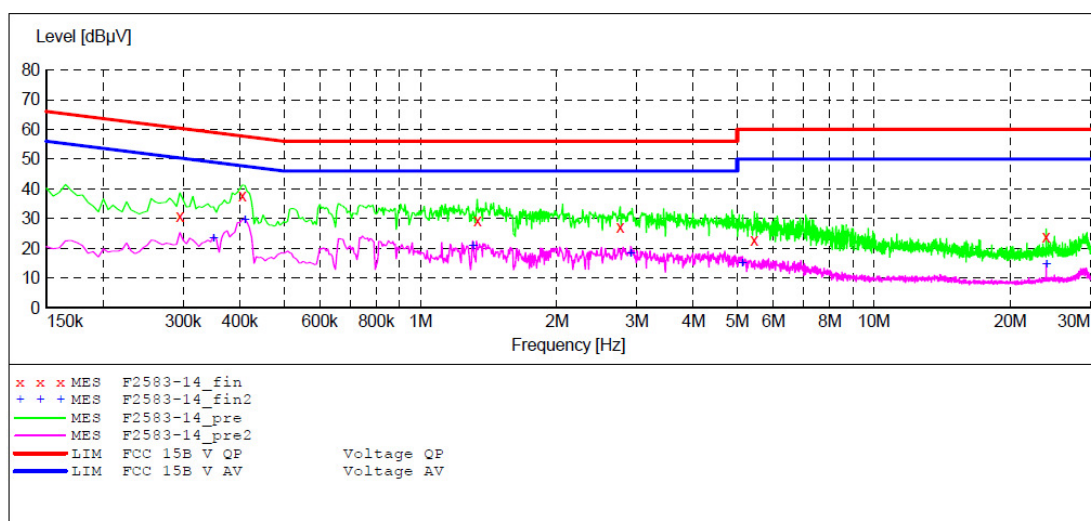
CONDUCTED EMISSION STANDARD FCC PART 15

EUT: Songbird II Radio M/N:CR3034A-BH
 Manufacturer: TIMSEN INTERNATIONAL LIMITED
 Operating Condition: BT OPERATION
 Test Site: 1#Shielding Room
 Operator: Frank
 Test Specification: N 240V/60Hz
 Comment: Report NO.:ATE20172583

SCAN TABLE: "V 9K-30MHz fin"

Short Description: SUB STD VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	NSLK8126 2008
150.0 kHz	30.0 MHz	5.0 kHz	Average			
			QuasiPeak	1.0 s	9 kHz	NSLK8126 2008
			Average			



MEASUREMENT RESULT: "F2583-14_fin"

1/8/2018 10:03AM

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.295000	30.60	10.6	60	29.8	QP	N	GND
0.405000	37.50	10.7	58	20.3	QP	N	GND
1.335000	29.20	10.9	56	26.8	QP	N	GND
2.760000	27.20	11.0	56	28.8	QP	N	GND
5.450000	22.90	11.2	60	37.1	QP	N	GND
23.995000	23.70	11.5	60	36.3	QP	N	GND

MEASUREMENT RESULT: "F2583-14_fin2"

1/8/2018 10:03AM

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.350000	23.60	10.6	49	25.4	AV	N	GND
0.410000	29.50	10.7	48	18.1	AV	N	GND
1.305000	20.90	10.9	46	25.1	AV	N	GND
2.910000	18.40	11.0	46	27.6	AV	N	GND
5.130000	15.00	11.2	50	35.0	AV	N	GND
23.995000	14.90	11.5	50	35.1	AV	N	GND

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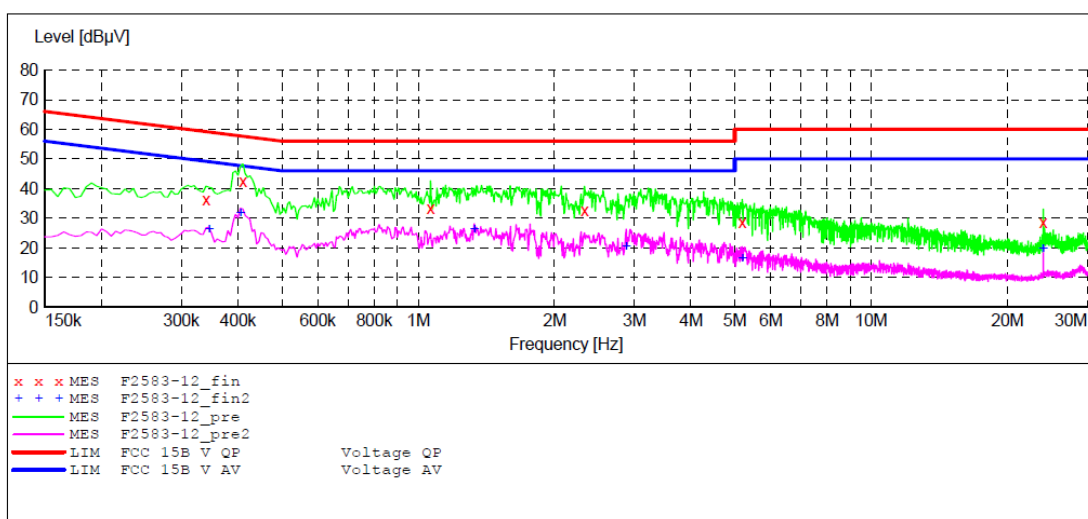
CONDUCTED EMISSION STANDARD FCC PART 15

EUT: Songbird II Radio M/N:CR3034A-BH
 Manufacturer: TIMSEN INTERNATIONAL LIMITED
 Operating Condition: BT OPERATION
 Test Site: 1#Shielding Room
 Operator: Frank
 Test Specification: L 120V/60Hz
 Comment: Report NO.:ATE20172583

SCAN TABLE: "V 9K-30MHz fin"

Short Description: SUB STD VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	NSLK8126 2008
150.0 kHz	30.0 MHz	5.0 kHz	Average	1.0 s	9 kHz	NSLK8126 2008



MEASUREMENT RESULT: "F2583-12_fin"

1/8/2018 9:55AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.340000	36.30	10.6	59	22.9	QP	L1	GND
0.410000	42.50	10.7	58	15.1	QP	L1	GND
1.065000	33.40	10.9	56	22.6	QP	L1	GND
2.330000	32.40	11.0	56	23.6	QP	L1	GND
5.190000	28.60	11.2	60	31.4	QP	L1	GND
23.995000	28.40	11.5	60	31.6	QP	L1	GND

MEASUREMENT RESULT: "F2583-12_fin2"

1/8/2018 9:55AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.345000	26.50	10.6	49	22.6	AV	L1	GND
0.405000	31.70	10.7	48	16.1	AV	L1	GND
1.330000	26.40	10.9	46	19.6	AV	L1	GND
2.880000	20.60	11.0	46	25.4	AV	L1	GND
5.190000	16.70	11.2	50	33.3	AV	L1	GND
23.995000	19.90	11.5	50	30.1	AV	L1	GND

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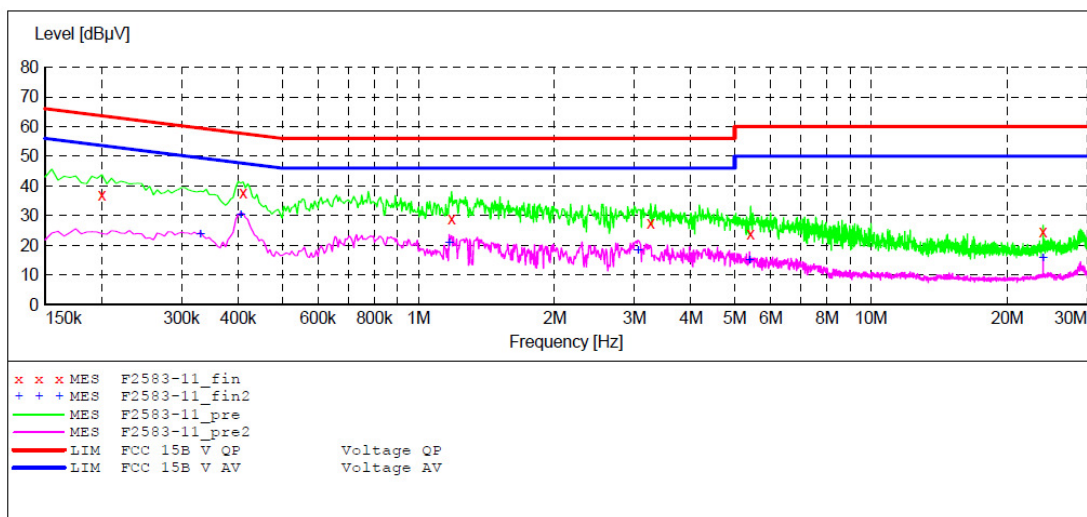
CONDUCTED EMISSION STANDARD FCC PART 15

EUT: Songbird II Radio M/N:CR3034A-BH
 Manufacturer: TIMSEN INTERNATIONAL LIMITED
 Operating Condition: BT OPERATION
 Test Site: 1#Shielding Room
 Operator: Frank
 Test Specification: N 120V/60Hz
 Comment: Report NO.:ATE20172583

SCAN TABLE: "V 9K-30MHz fin"

Short Description: SUB STD VTERM2 1.70

Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	NSLK8126 2008
150.0 kHz	30.0 MHz	5.0 kHz	Average	1.0 s	9 kHz	NSLK8126 2008



MEASUREMENT RESULT: "F2583-11_fin"

1/8/2018 9:51AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.200000	37.00	10.5	64	26.6	QP	N	GND
0.410000	37.80	10.7	58	19.8	QP	N	GND
1.185000	29.10	10.9	56	26.9	QP	N	GND
3.260000	27.40	11.1	56	28.6	QP	N	GND
5.420000	23.70	11.2	60	36.3	QP	N	GND
23.995000	24.40	11.5	60	35.6	QP	N	GND

MEASUREMENT RESULT: "F2583-11_fin2"

1/8/2018 9:51AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.330000	24.00	10.6	50	25.5	AV	N	GND
0.405000	30.30	10.7	48	17.5	AV	N	GND
1.170000	21.10	10.9	46	24.9	AV	N	GND
3.060000	18.30	11.1	46	27.7	AV	N	GND
5.390000	15.00	11.2	50	35.0	AV	N	GND
23.995000	15.80	11.5	50	34.2	AV	N	GND

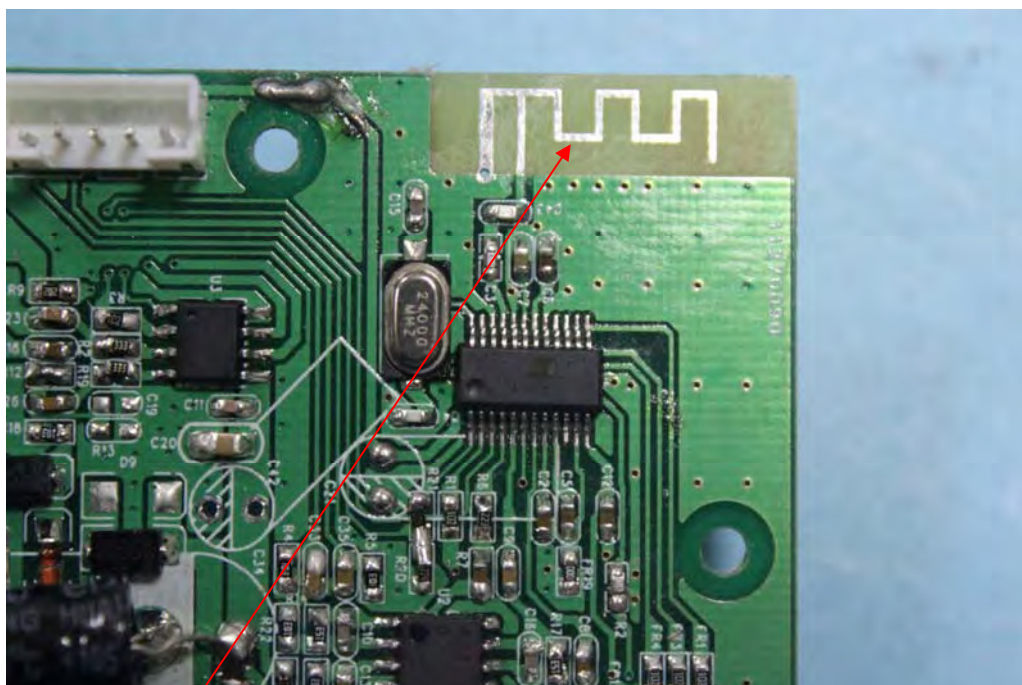
13.ANTENNA REQUIREMENT

13.1.The Requirement

According to Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

13.2.Antenna Construction

Device is equipped with permanent attached antenna, which isn't displaced by other antenna. The Max Antenna gain of EUT is 2dBi. Therefore, the equipment complies with the antenna requirement of Section 15.203.



Antenna