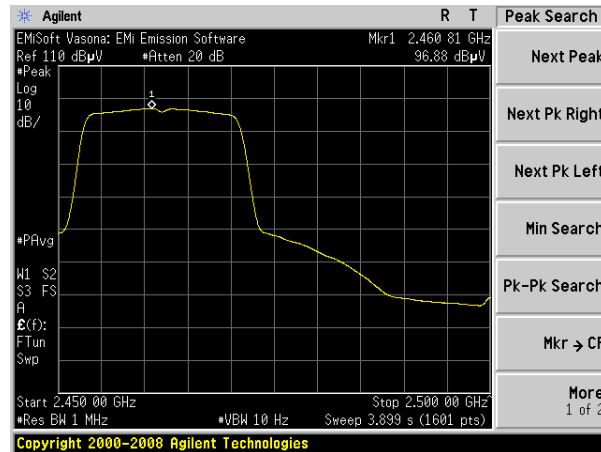
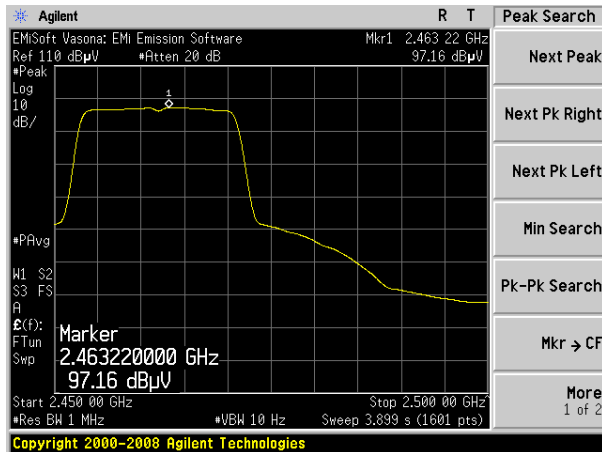


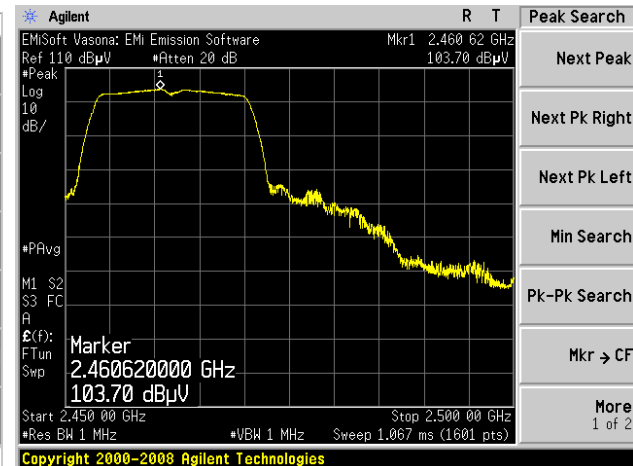
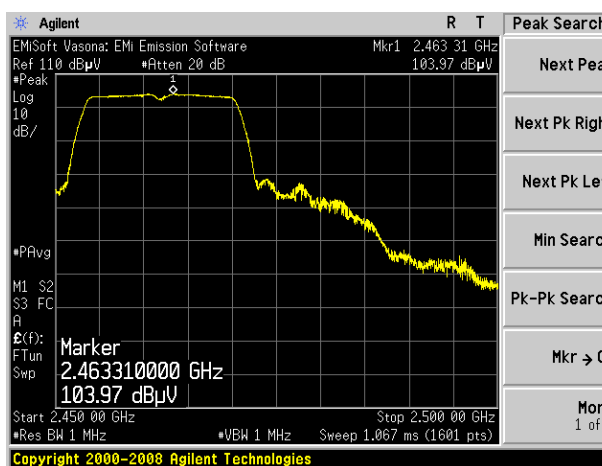


### Marker-Delta Measurements:

Radiated Graph Results for 2462MHz Average (HT-20):

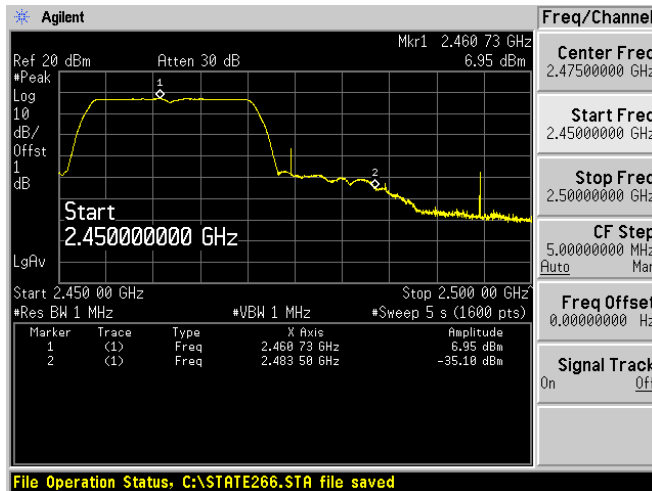


Radiated Graph Results for 2462MHz Peak (HT-20):

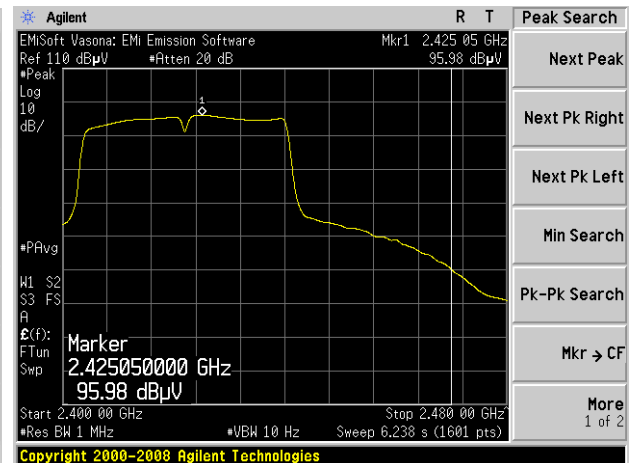
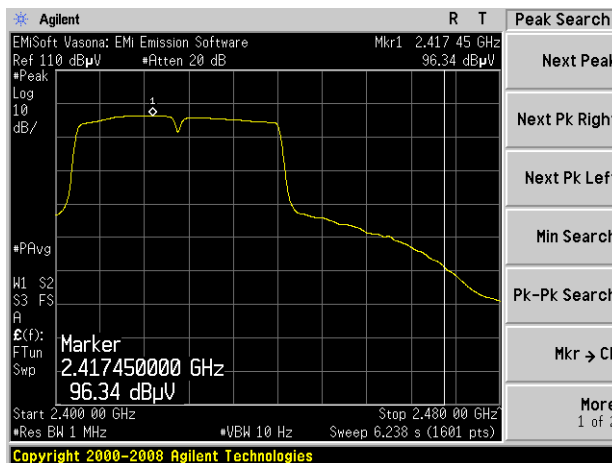




Conducted Graph Results for 2462MHz (HT-20):

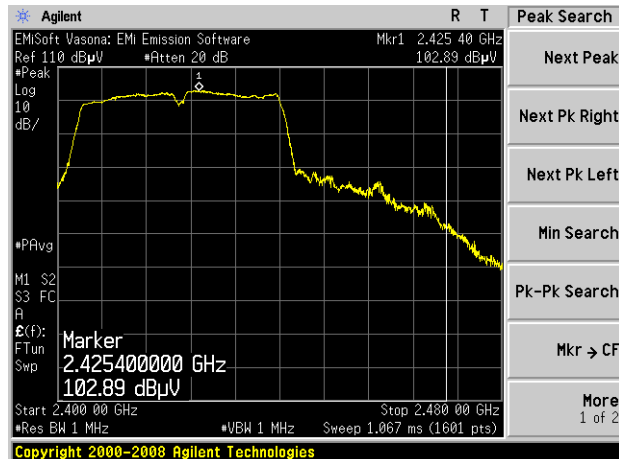
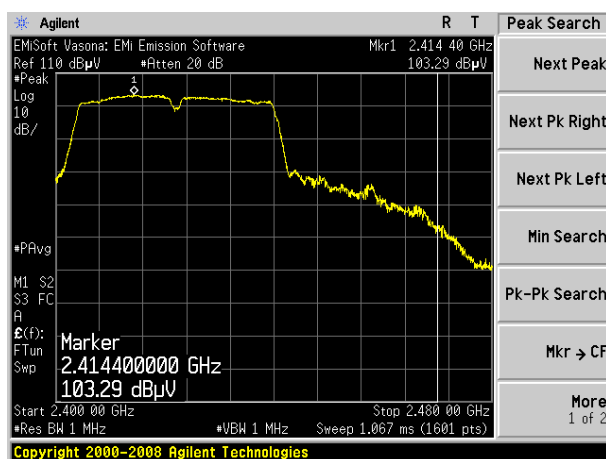


Radiated Graph Results for 2422MHz Average (HT-40)

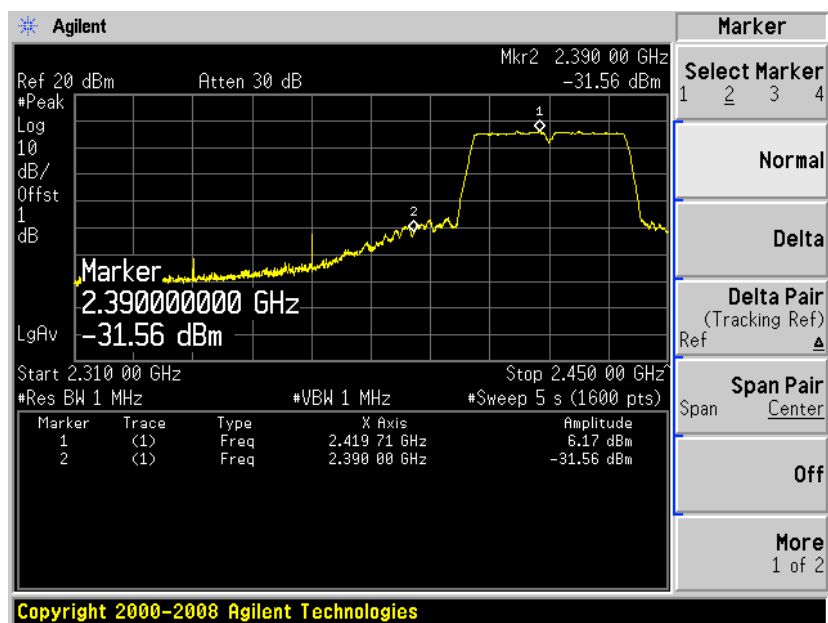




Radiated Graph Results for 2422MHz Peak (HT-40)

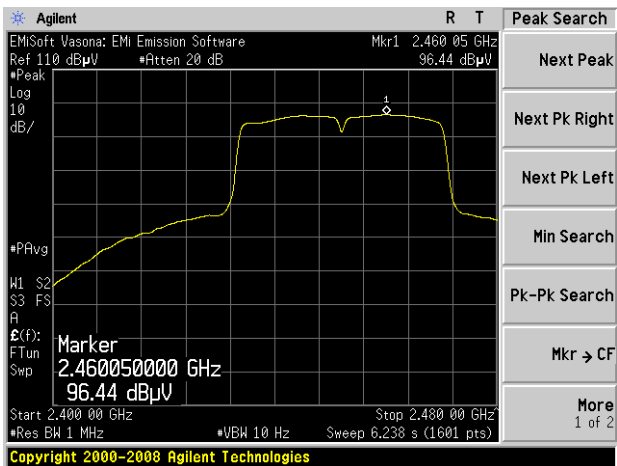
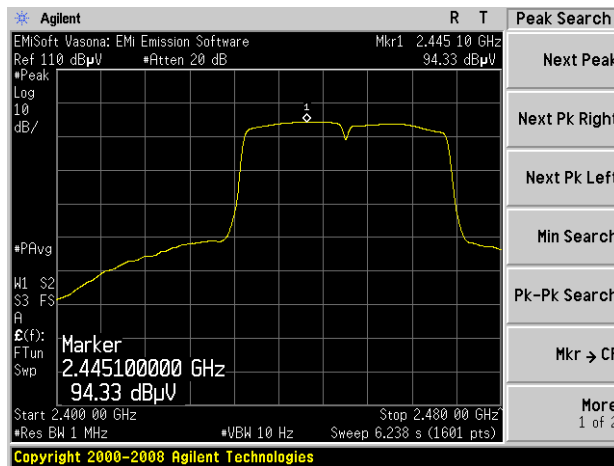


Conducted Graph Results for 2422MHz (HT-40)

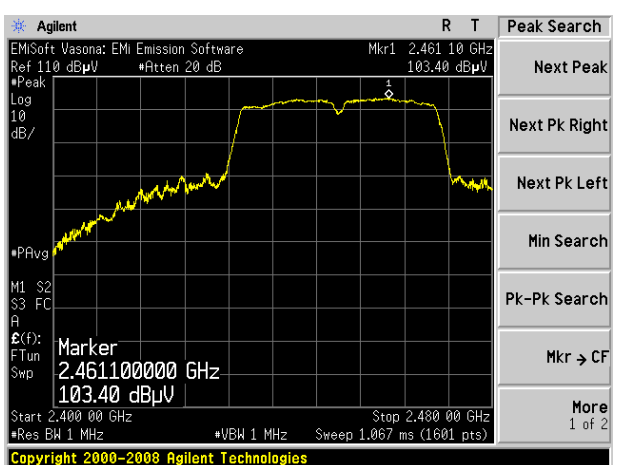
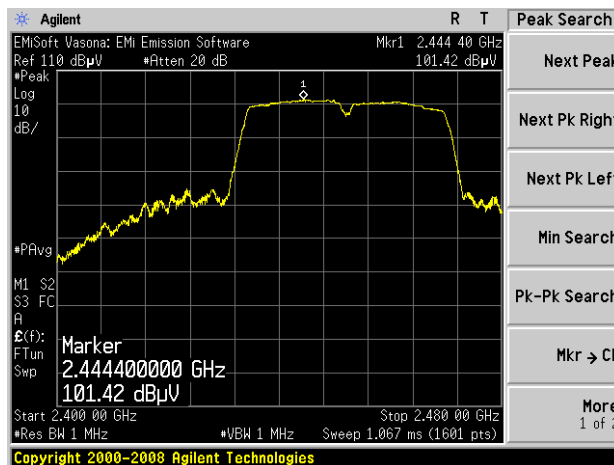




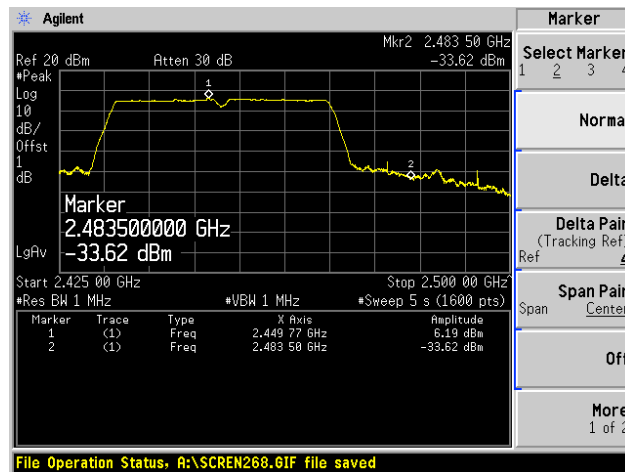
Radiated Graph Results for 2452MHz Average (HT-40)



Radiated Graph Results for 2422MHz Peak (HT-40)



Conducted Graph Results for 2422MHz (HT-40)

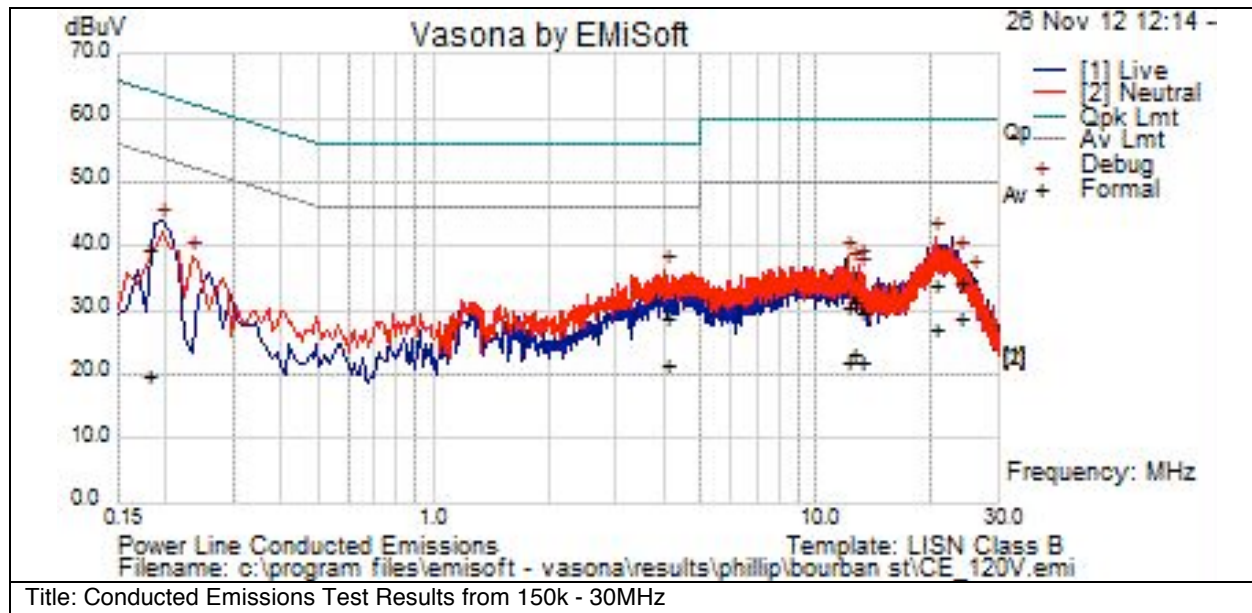


### Conducted Emissions

Test Number: 113492 Spec ID: 484				
Basic Standard	Applied to	Class	Freq Range	Test Details / Comments
CFR47 Part 15: 2008 (CAN/CSA-CISPR 22-02)	AC Power Line	B	0.15MHz - 30MHz	U.S line voltages must be used (e.g. 110V/ 208V 60Hz).
Operating Mode	Mode : 1, Adapter Mode			
Power Input	110, 60Hz (+/-20%)			
Overall Result	Pass			
Comments	No further comments			
Deviation	There were no deviations from the specification			

### Graphical Test Results

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



#### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	Factors dB	Level dBuV	Measurement Type	Line	Limit dBuV	Margin dB	Pass /Fail	Comments
23.664	7.5	21	0.2	28.6	Av	L	50	-21.4	Pass	
20.566	6.5	20.4	0.2	27.1	Av	N	50	-22.9	Pass	
4.035	1.5	20	0	21.6	Av	N	46	-24.4	Pass	
0.1799	18.6	21	0	39.6	Qp	L	64.5	-24.9	Pass	
23.664	13.4	21	0.2	34.5	Qp	L	60	-25.5	Pass	
20.566	13.2	20.4	0.2	33.8	Qp	N	60	-26.2	Pass	
12.47	2.7	20.2	0.1	23.1	Av	N	50	-26.9	Pass	
4.035	8.5	20	0	28.6	Qp	N	56	-27.4	Pass	
13.054	1.4	20.3	0.1	21.8	Av	N	50	-28.2	Pass	
12.136	1.5	20.2	0.1	21.8	Av	N	50	-28.2	Pass	
12.47	10.8	20.2	0.1	31.2	Qp	N	60	-28.8	Pass	
12.136	10	20.2	0.1	30.3	Qp	N	60	-29.7	Pass	
13.054	9.1	20.3	0.1	29.5	Qp	N	60	-30.5	Pass	
0.1799	-1.2	21	0	19.8	Av	L	54.5	-34.7	Pass	

#### Physical Test arrangement Photograph:



**Title:** Conducted Emissions Test Configuration

## Radiated Spurious and Harmonics Emissions

15.205 & RSS-210 sec2.7:

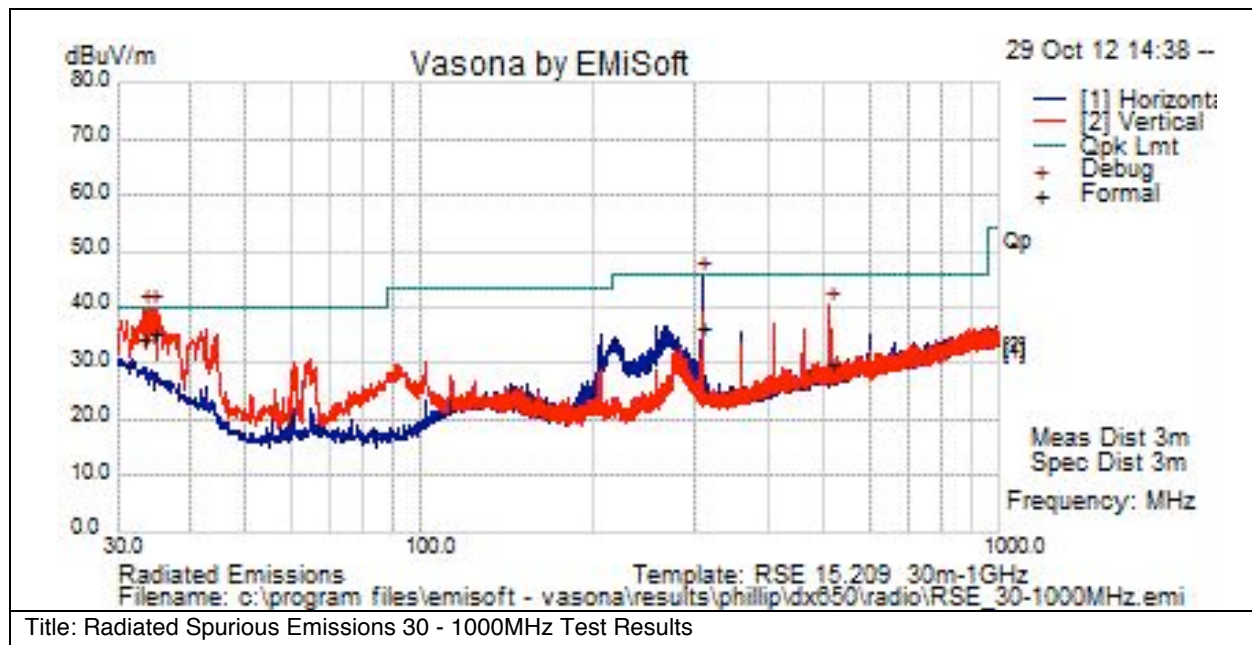
Radiated emissions which fall in the restricted bands, as defined in Sec. 15.205(a), must also comply with the radiated emission limits specified in Sec. 15.209(a).

**Note 1: All 3-axis (X,Y, Z) were evaluated during preliminary testing and the worst case orientation was for all formal testing shown below.**

**Note 2: Notch Filter used during measurements with correction factors included..**

### Graphical Test Results for 30 – 1000MHz:

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
34.38	16.9	0.5	18	35.4	Qp	V	110	66	40	-4.6	Pass	
33.179	14.9	0.5	18.9	34.3	Qp	V	105	38	40	-5.7	Pass	
307.047	21.2	1.6	13.6	36.4	Qp	H	103	97	46	-9.6	Pass	
511.908	10	2.1	17.8	29.8	Qp	V	101	148	46	-16.2	Pass	



15.205 & RSS-210 sec2.7:

Radiated emissions which fall in the restricted bands, as defined in Sec. 15.205(a), must also comply with the radiated emission limits specified in Sec. 15.209(a).

**Note 1: All 3-axis (X,Y, Z) were evaluated during preliminary testing and the worst case orientation was for all formal testing shown below.**

**Note 2: Notch Filter used during measurements with correction factors included..**

Using Vasona, configure the spectrum analyzer as shown below (be sure to enter all losses between the transmitter output and the spectrum analyzer). Place the radio in continuous transmit mode.

Span:	1GHz – 18 GHz
Reference Level:	80 dBuV
Attenuation:	10 dB
Sweep Time:	Coupled
Resolution Bandwidth:	1MHz
Video Bandwidth:	1 MHz for peak, 10 Hz for average
Detector:	Peak

Terminate the access Point RF ports with 50 ohm loads.

Maximize Turntable (find worst case table angle), Maximize Antenna (find worst case height)

Save 2 plots:     1) Average Plot (Vertical and Horizontal), Limit= 54dBuV/m @3m  
                      2) Peak plot (Vertical and Horizontal), Limit = 74dBuV/m @3m

Place a marker at the end of the restricted band closest to the transmit frequency to show compliance.  
Also measure any emissions in the restricted bands.

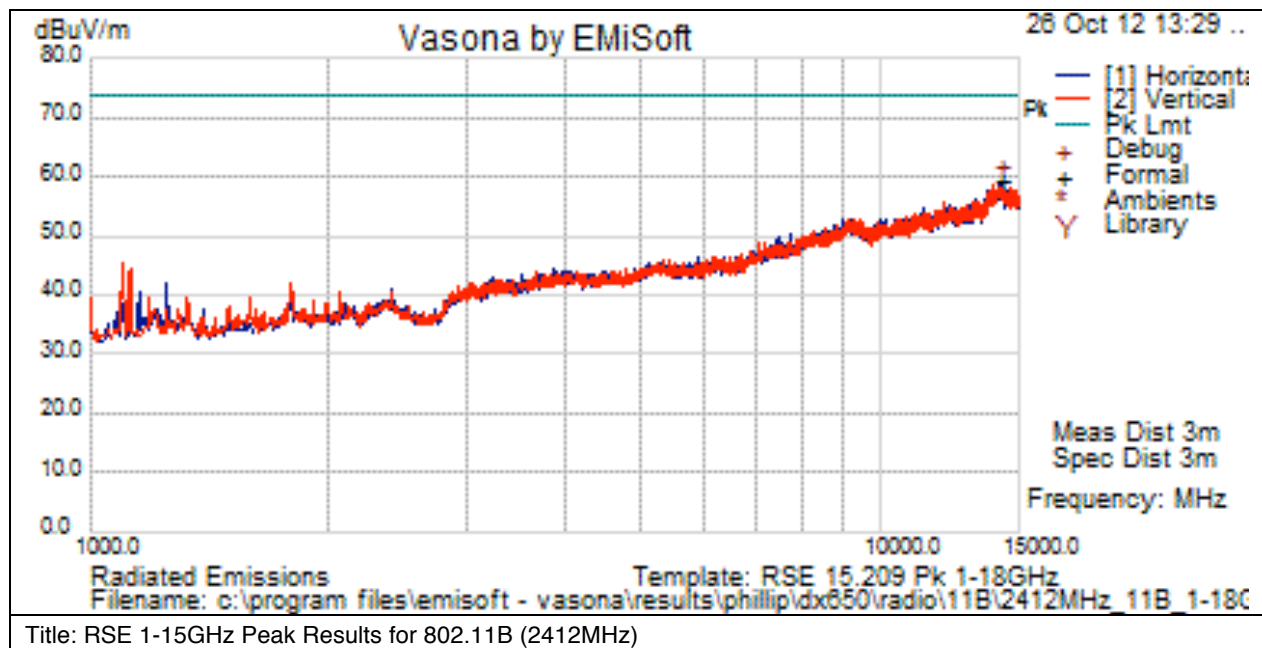
This report represents the worst case data for all supported operating modes and antennas.  
System was evaluated up to 40GHz but there were no measurable emissions above 15 GHz.

Note: A Notch Filter was used during formal testing from 1 – 15GHz to help prevent the front end of the analyzer from over loading. The Notch filters used are designed to suppress Tx fundamental frequency but do not effect harmonics of the fundamental frequency from being measured



**Graphical Test Results for 802.11B: 1 – 15GHz (Peak):**

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



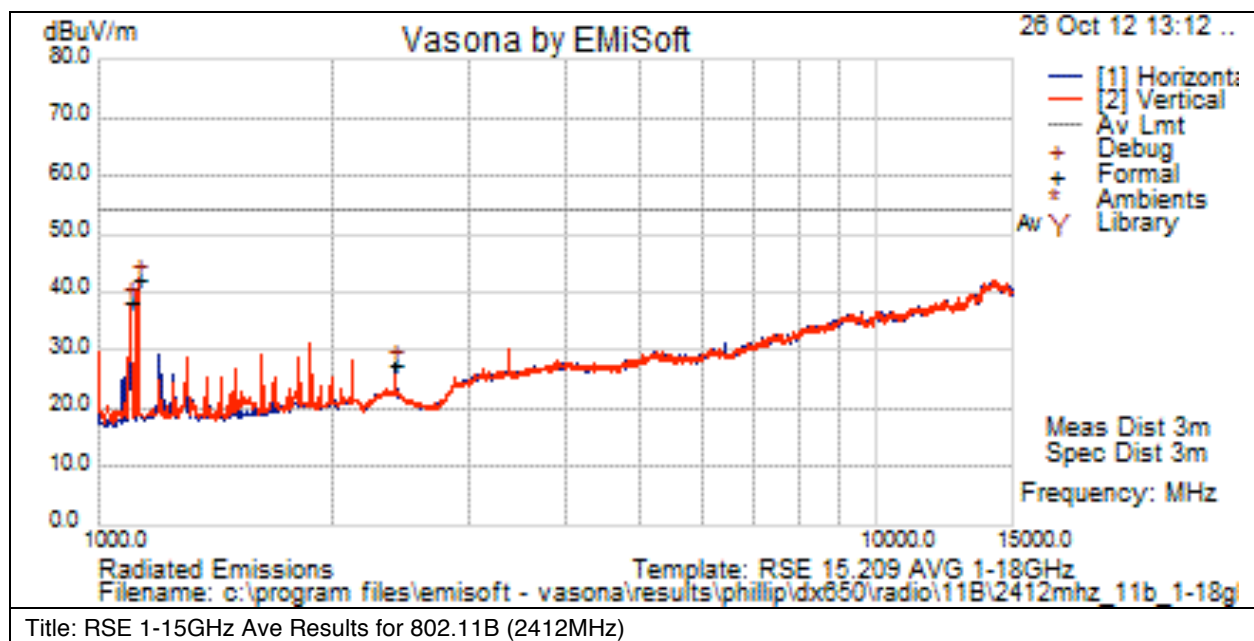
**Test Results Table**

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
14270.625	39.7	12.4	7.2	59.3	Pk	H	100	0	74	-14.7	Pass	Noise Floor



### Graphical Test Results for 802.11B 2412MHz: 1 – 15GHz (Average)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



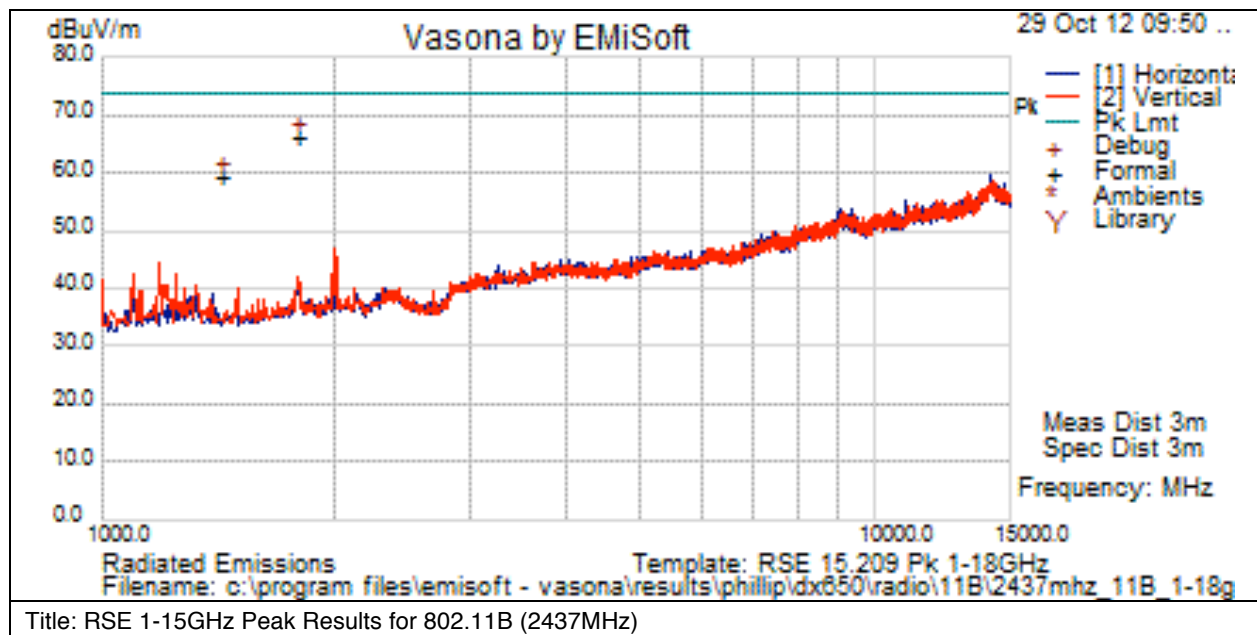
### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
1127.5	47.1	3.2	-8	42.4	Av	V	100	0	54	-11.6	Pass	Support Equip
1100.938	43.2	3.2	-8.2	38.1	Av	V	100	0	54	-15.9	Pass	Support Equip



### Graphical Test Results for 802.11B 2437MHz: 1 – 15GHz (Peak)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



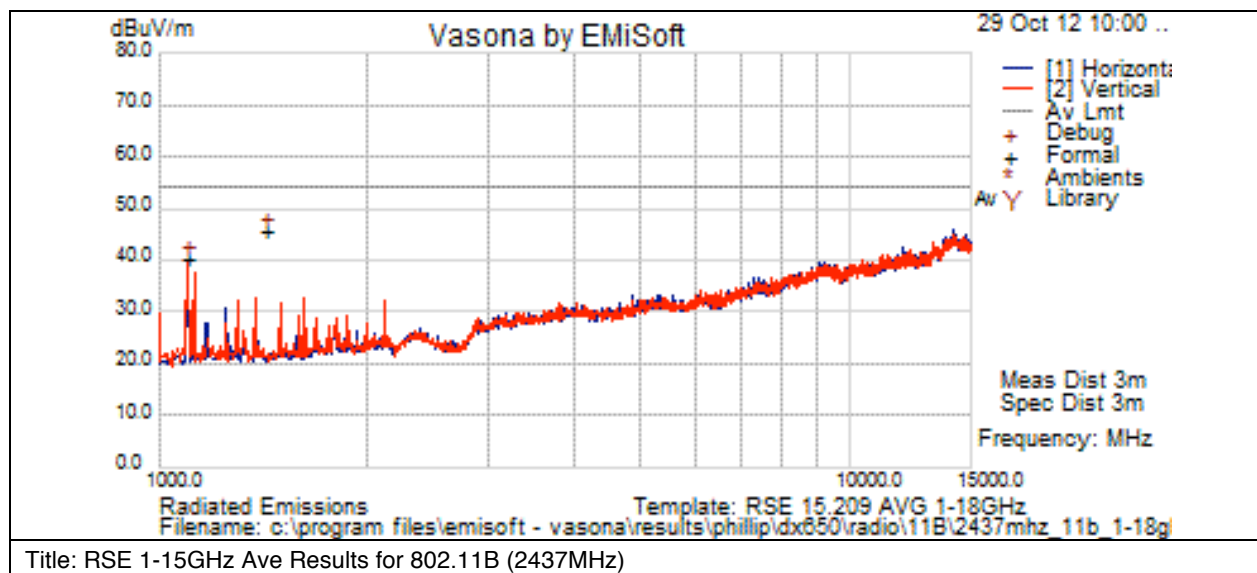
### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
1792.00	38.1	15.7	12.4	66.3	Pk	V	100	0	74	-7.7	Pass	Noise Floor
1420.00	39.7	12.4	7.3	59.4	Pk	H	100	0	74	-14.6	Pass	Noise Floor



### Graphical Test Results for 802.11B 2437MHz: 1 – 15GHz (Average)

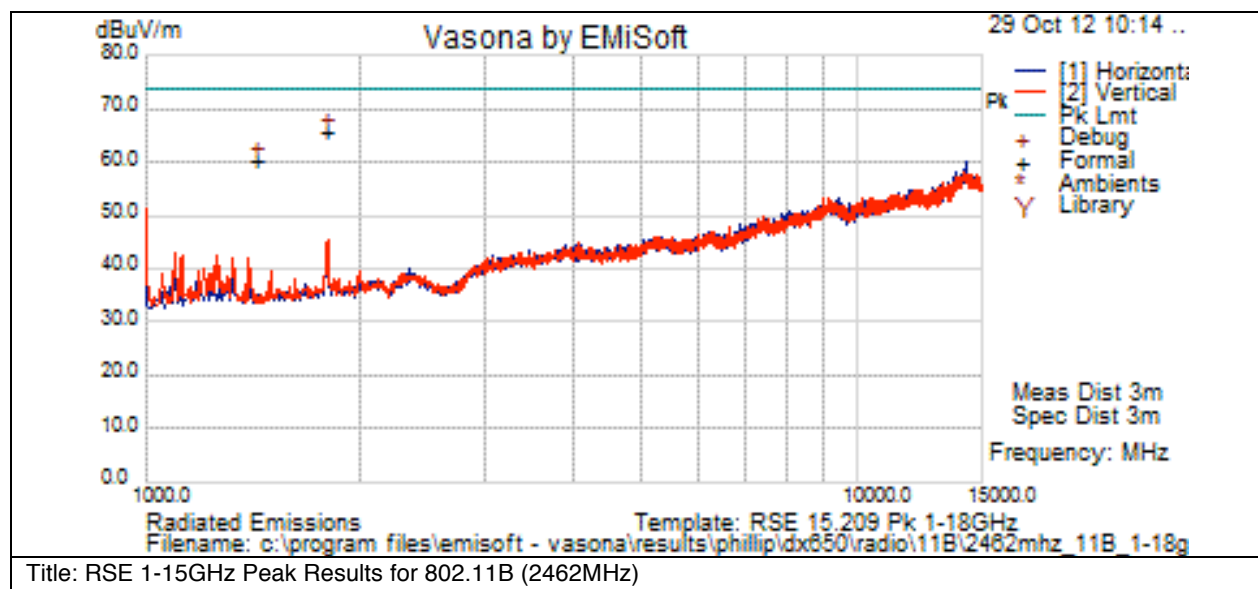
Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
14217.5	25.9	12.4	7.4	45.7	Av	H	100	0	54	-8.3	Pass	Noise Floor
1100.938	45.2	3.2	-8.2	40.2	Av	V	100	0	54	-13.8	Pass	Support Equip

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



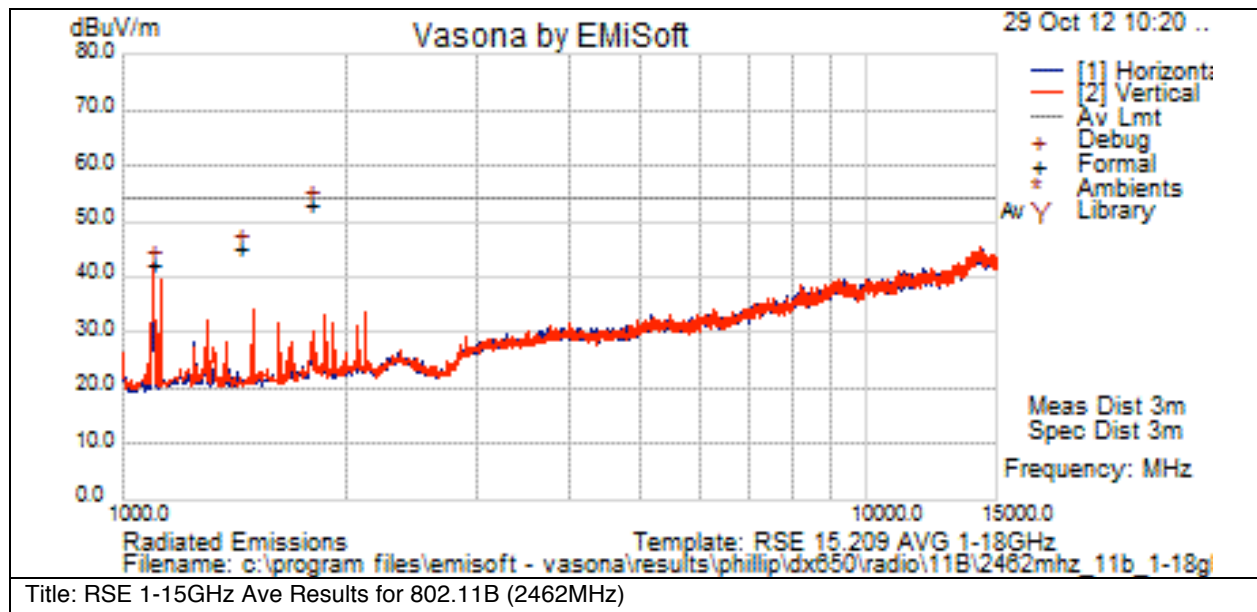
### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
1790.00	37.9	15.7	12.3	65.8	Pk	H	100	0	74	-8.2	Pass	Noise Floor
1430.00	40.4	12.4	7.3	60.2	Pk	H	100	0	74	-13.8	Pass	Noise Floor



### Graphical Test Results for 802.11B 2462MHz: 1 – 15GHz (Average)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



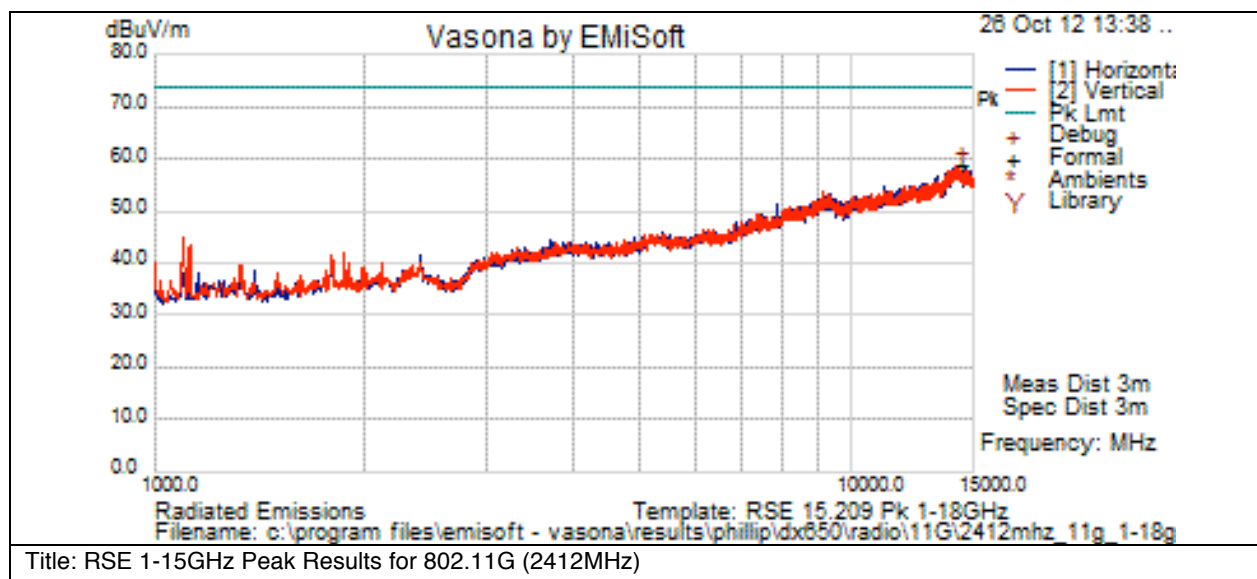
### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
1788.125	25.3	15.6	12.1	53	Av	H	100	0	54	-1	Pass	Noise Floor
1431.438	25.5	12.5	7.3	45.2	Av	H	100	0	54	-8.7	Pass	Noise Floor
1100.938	47.3	3.2	-8.2	42.3	Av	V	100	0	54	-11.7	Pass	Support Equip



### Graphical Test Results for 802.11G 2412MHz: 1 – 15GHz (Peak)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



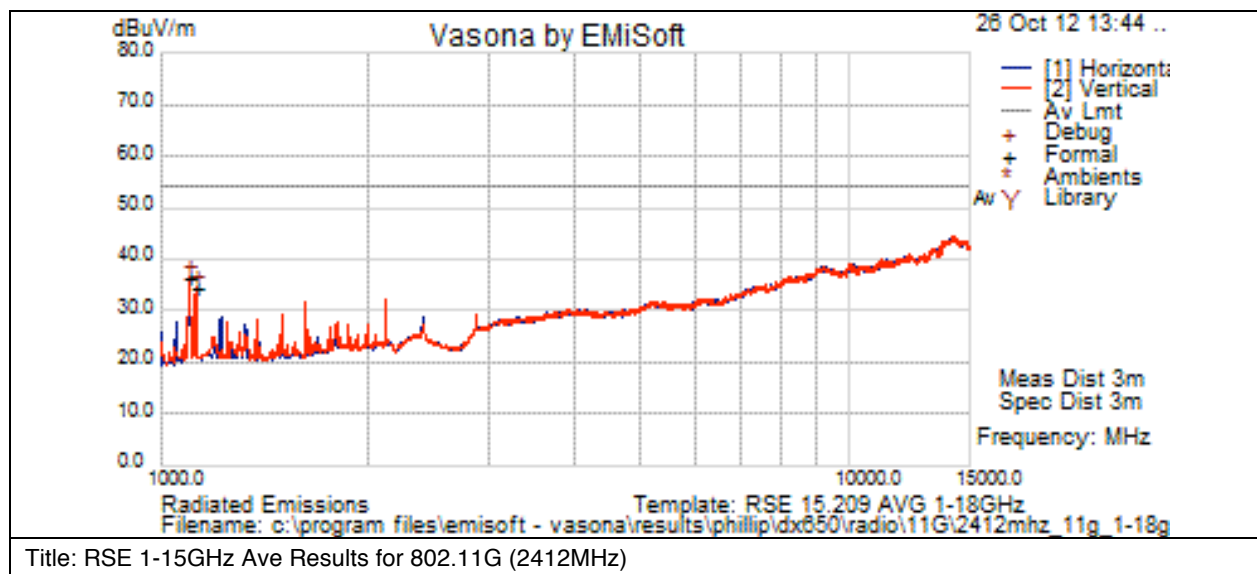
### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
14318.438	38.9	12.5	7.3	58.7	Pk	V	100	0	74	-15.3	Pass	Noise Floor



### Graphical Test Results for 802.11G at 2412MHz: 1 – 15GHz (Average)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



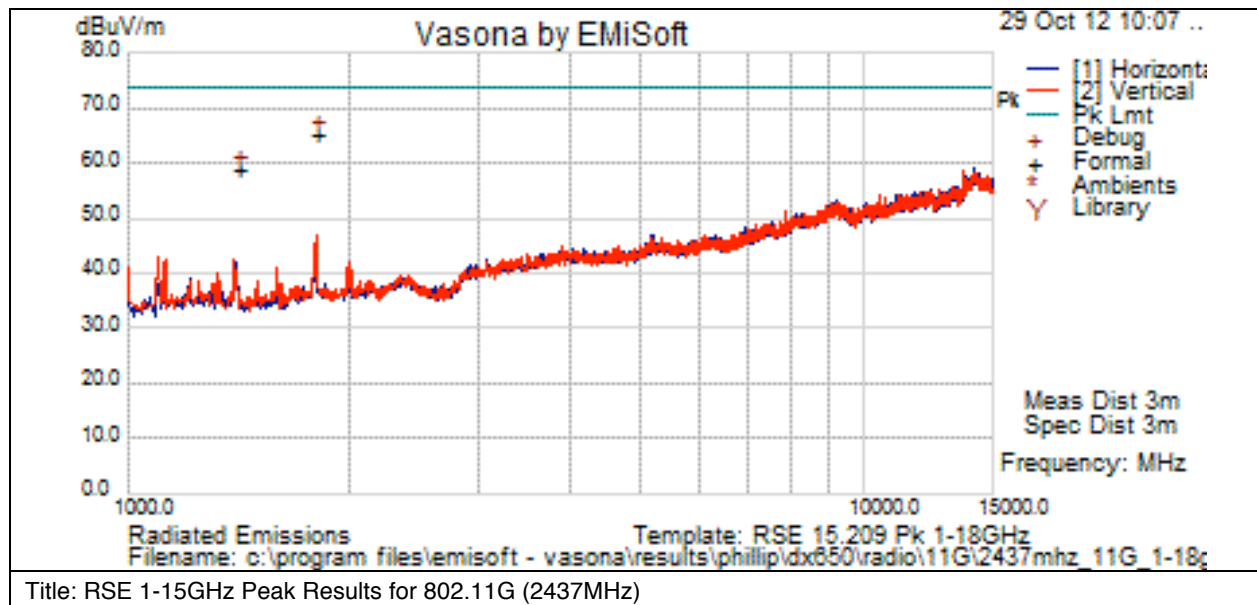
### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
1100.938	41.5	3.2	-8.2	36.5	Av	V	100	0	54	-17.5	Pass	Support Equip
1127.5	39.2	3.2	-8	34.5	Av	V	100	0	54	-19.5	Pass	Support Equip



### Graphical Test Results for 802.11G at 2437MHz: 1 – 15GHz (Peak)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



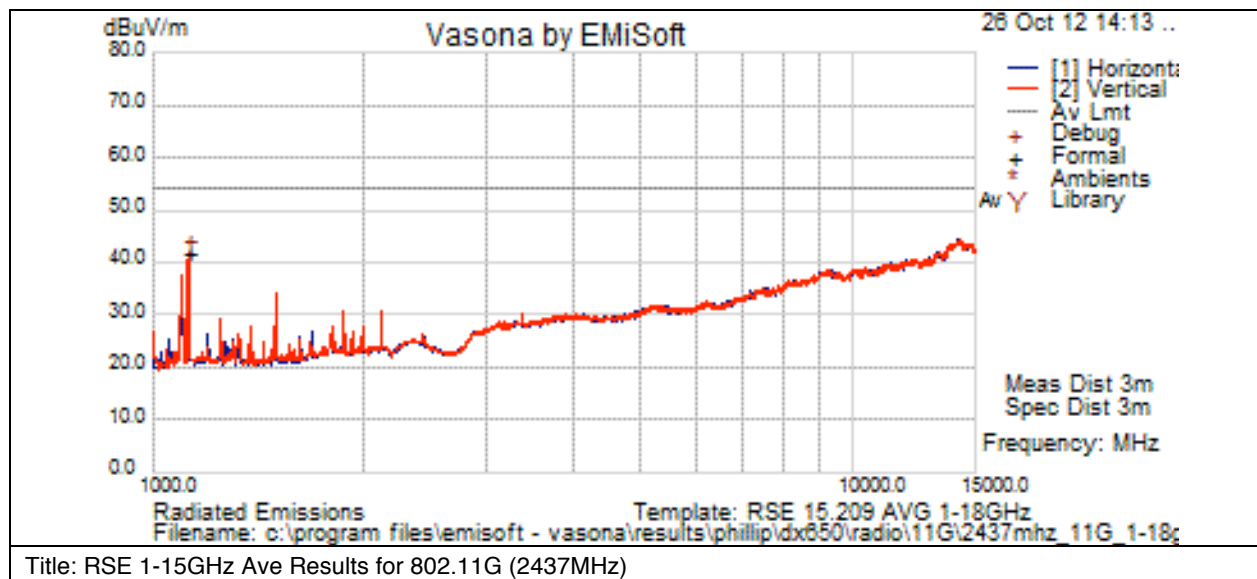
### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
1798.375	37.3	15.8	12.3	65.4	Pk	V	100	0	74	-8.6	Pass	Noise Floor
1412.188	39.6	12.3	7	58.9	Pk	H	100	0	74	-15.1	Pass	Noise Floor



### Graphical Test Results for 802.11G at 2437MHz: 1 – 15GHz (Average)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements

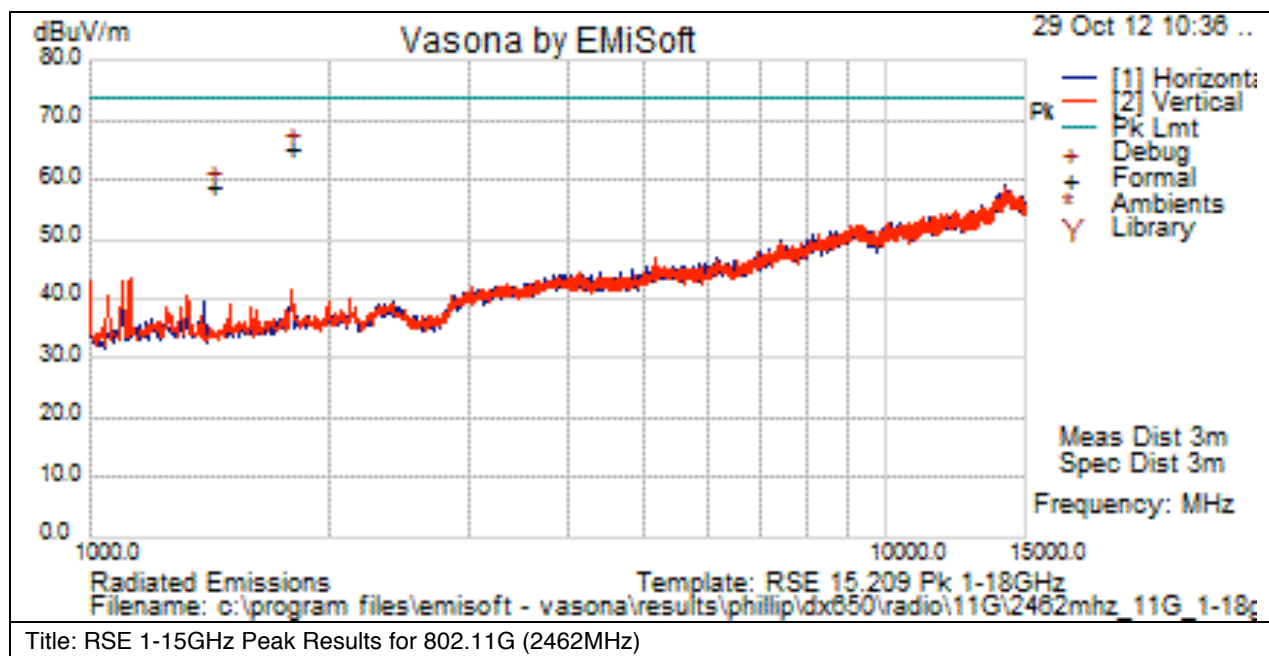


### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
1127.5	46.6	3.2	-8	41.8	Av	V	100	0	54	-12.2	Pass	Support Equip

### Graphical Test Results for 802.11G at 2462MHz: 1 – 15GHz (Peak)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements

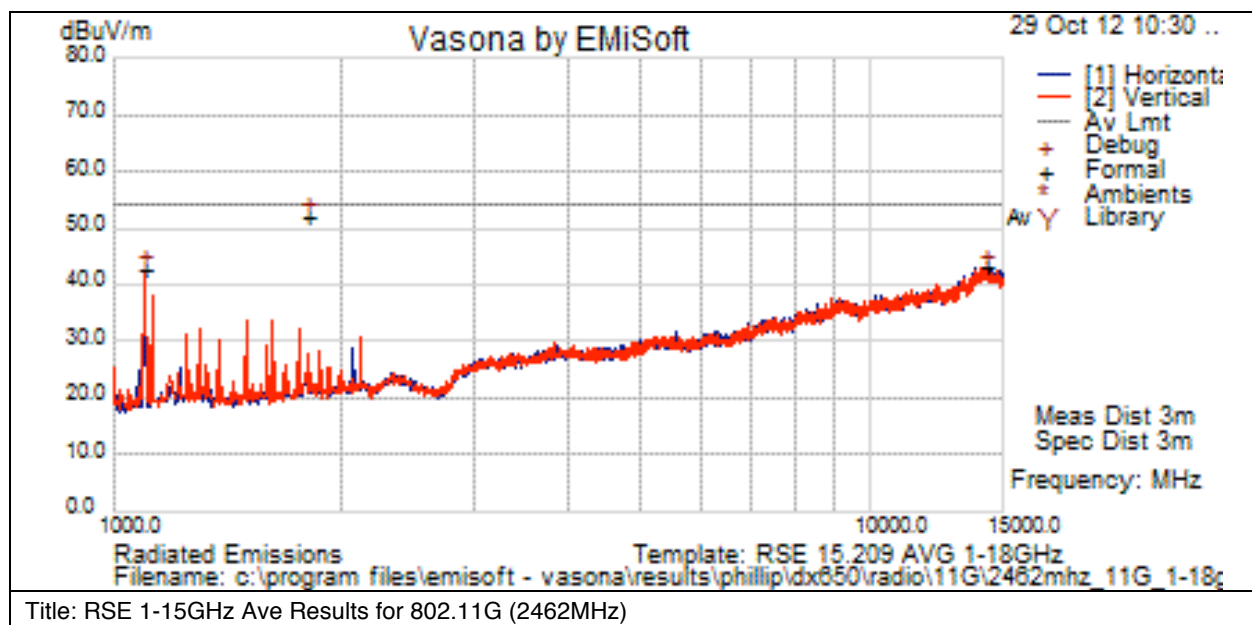


### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
1790.688	37.3	15.7	12.3	65.3	Pk	V	100	0	74	-8.7	Pass	Noise Floor
1416.25	39.3	12.4	7.3	59	Pk	H	100	0	74	-15	Pass	Noise Floor

### Graphical Test Results for 802.11G at 2462MHz: 1 – 15GHz (Average)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements

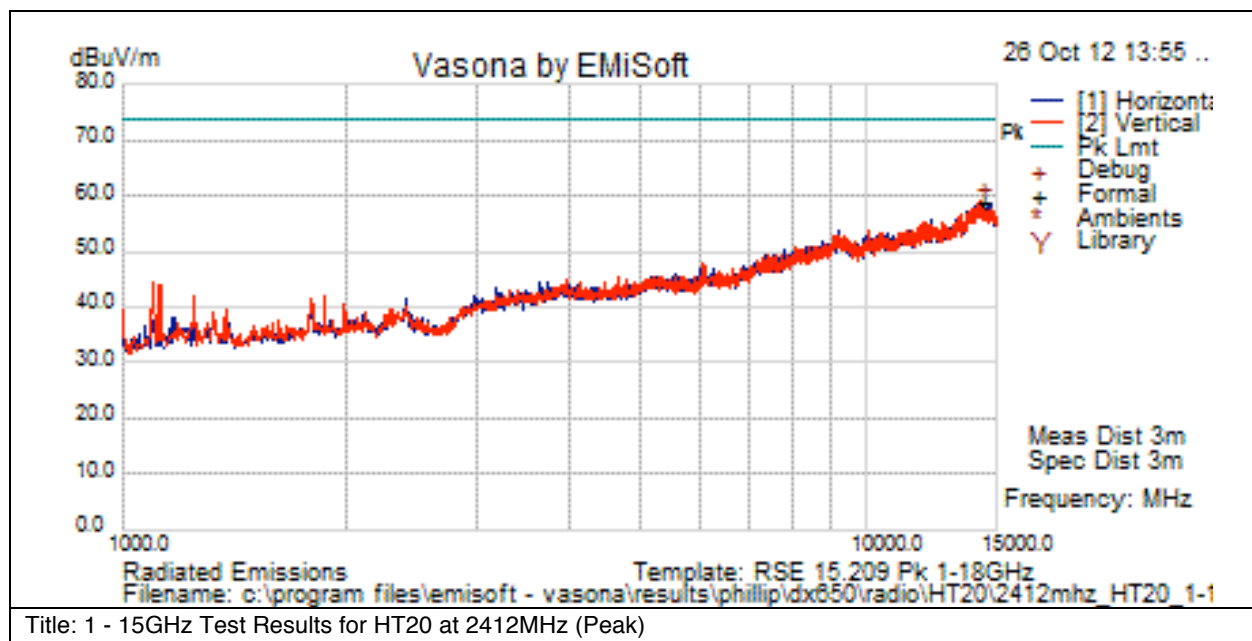


### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
1799.688	23.8	15.8	12.4	51.9	Av	H	100	0	54	-2.1	Pass	Noise Floor
14291.875	23.2	12.4	7.3	42.9	Av	V	100	0	54	-11.1	Pass	Noise Floor
1100.938	47.6	3.2	-8.2	42.6	Av	V	100	0	54	-11.4	Pass	Support Equip

### Graphical Test Results for HT20 at 2412MHz: 1 – 15GHz (Peak)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



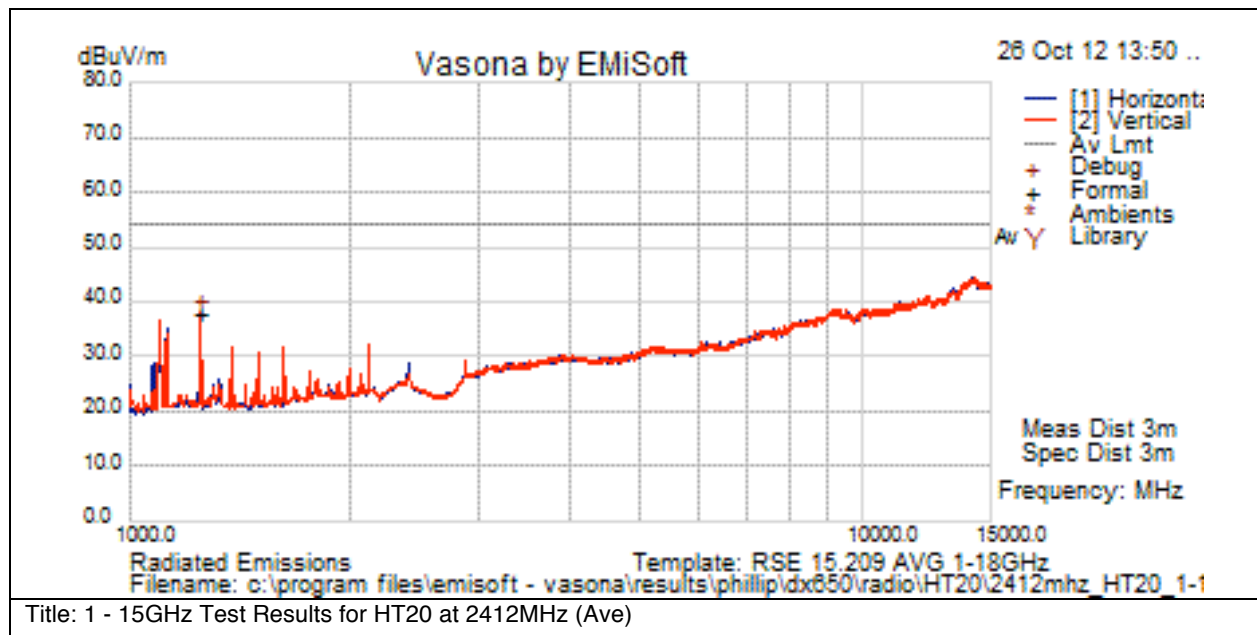
### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
14313.125	39.3	12.4	7.3	59	Pk	V	100	0	74	-15	Pass	Noise Floor



### Graphical Test Results for HT20 at 2412MHz: 1 – 15GHz (Average)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



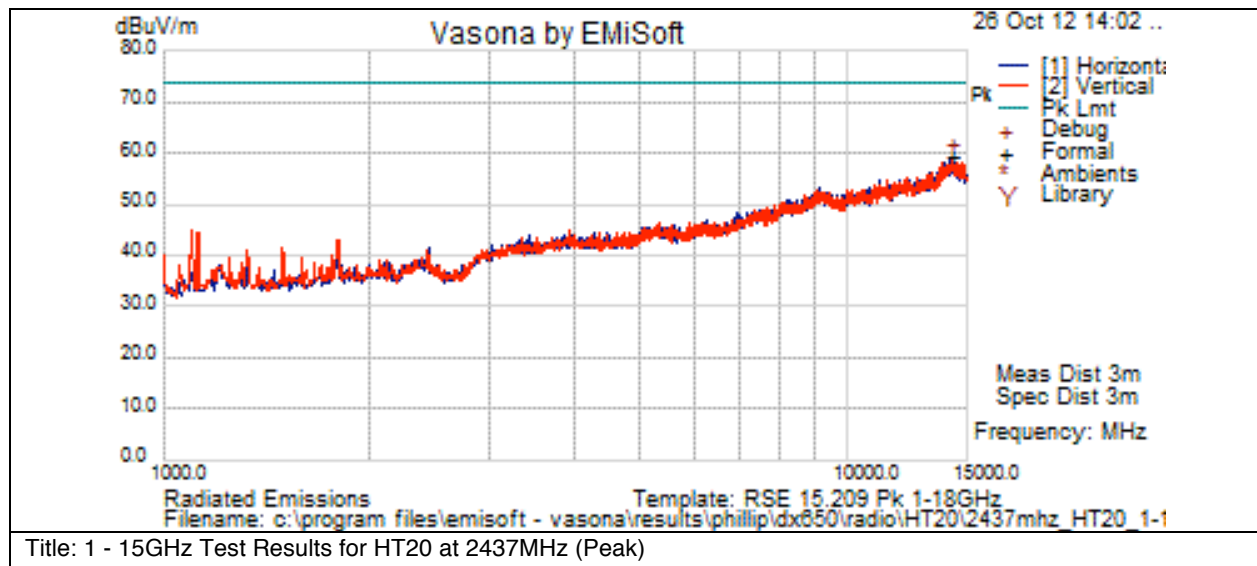
### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
1249.688	42.1	3.4	-7.6	37.9	Av	V	100	0	54	-16.1	Pass	Support Equip



### Graphical Test Results for HT20 at 2437MHz: 1 – 15GHz (Peak)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



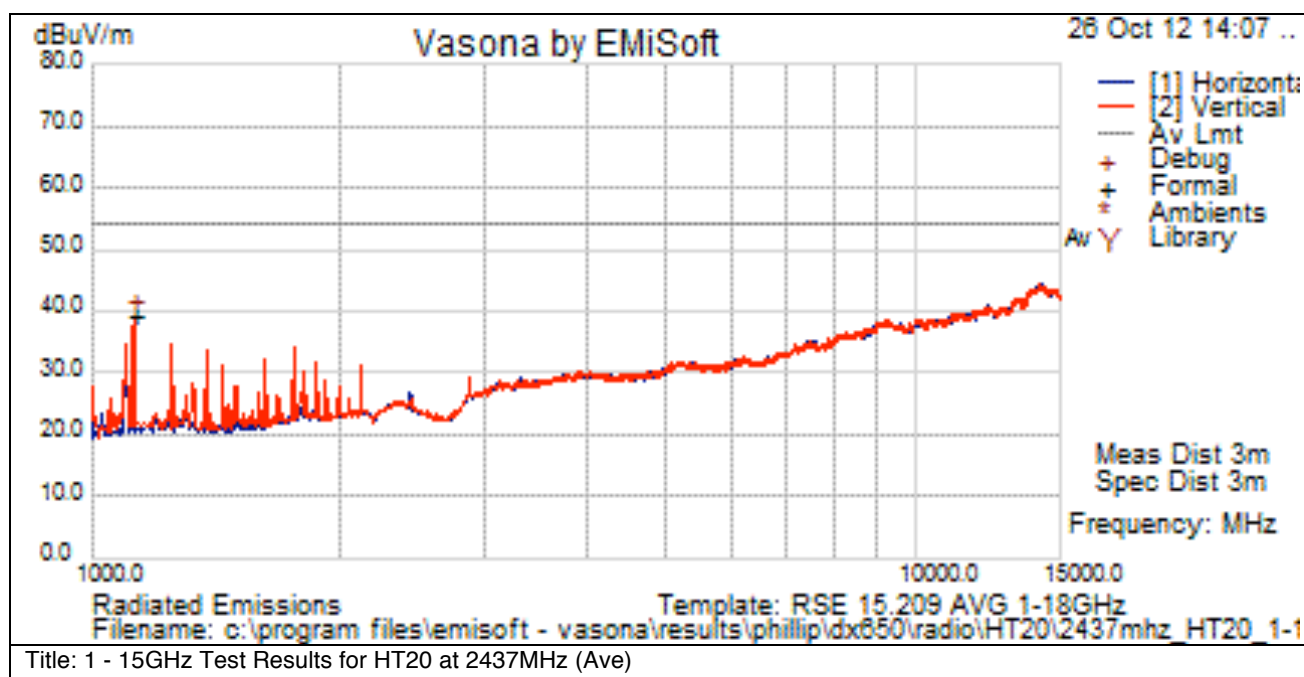
### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
14233.438	39.6	12.4	7.3	59.3	Pk	H	100	0	74	-14.7	Pass	Noise Floor



### Graphical Test Results for HT20 at 2437MHz: 1 – 15GHz (Average)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements

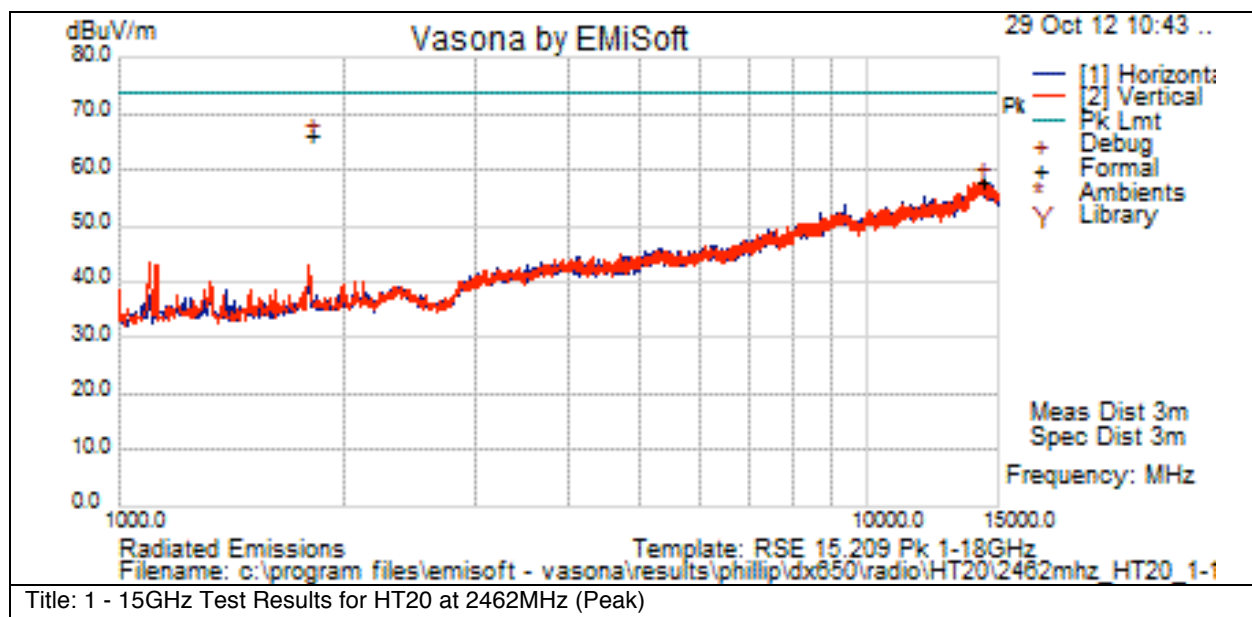


### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
1127.5	44	3.2	-8	39.2	Av	V	100	0	54	-14.8	Pass	Support Equip

### Graphical Test Results for HT20 at 2462MHz: 1 – 15GHz (Peak)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



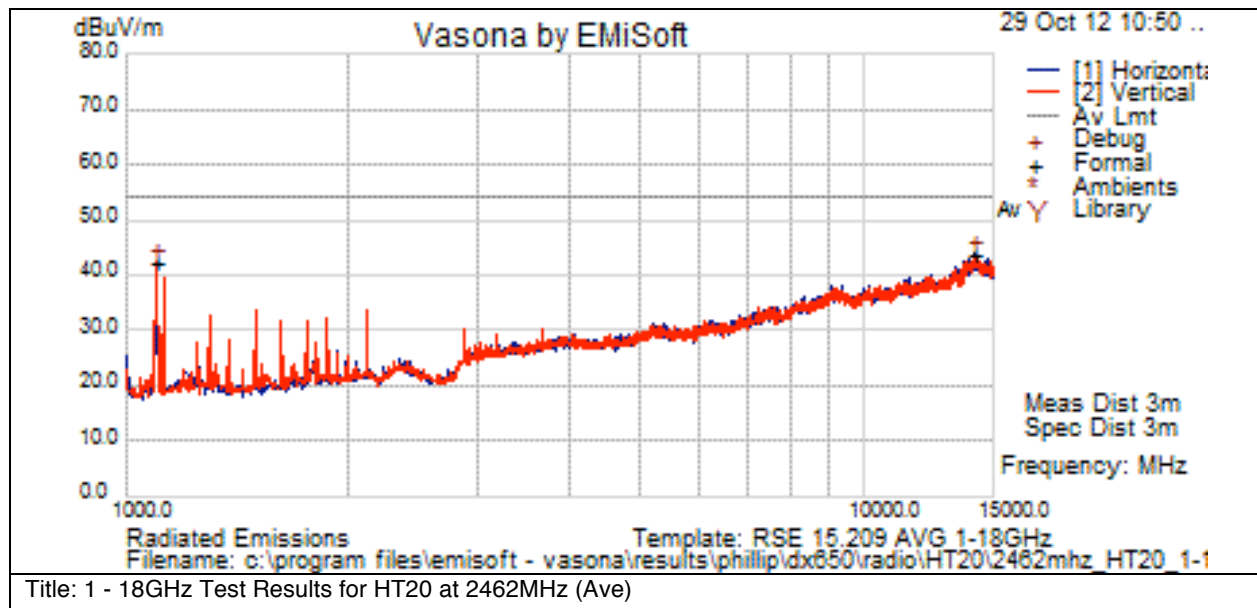
### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
1794.688	37.8	15.8	12.4	66	Pk	H	100	0	74	-8	Pass	Noise Floor
14297.188	38.2	12.4	7.3	57.9	Pk	V	100	0	74	-16.1	Pass	Noise Floor



### Graphical Test Results for HT20 at 2462MHz: 1 – 18GHz (Average)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements

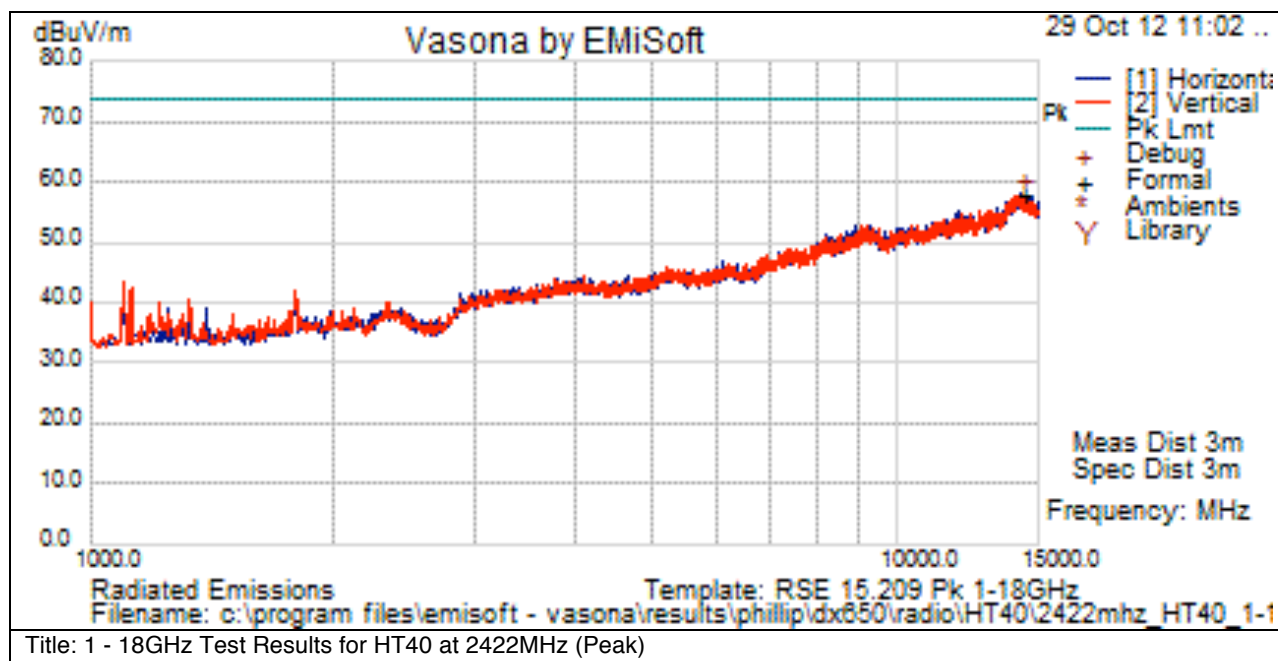


### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
14132.5	24.5	12.3	7	43.8	Av	H	100	0	54	-10.2	Pass	Noise Floor
1100.938	47.4	3.2	-8.2	42.3	Av	V	100	0	54	-11.7	Pass	Support Equip

### Graphical Test Results for HT40 at 2422MHz: 1 – 15GHz (Peak)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



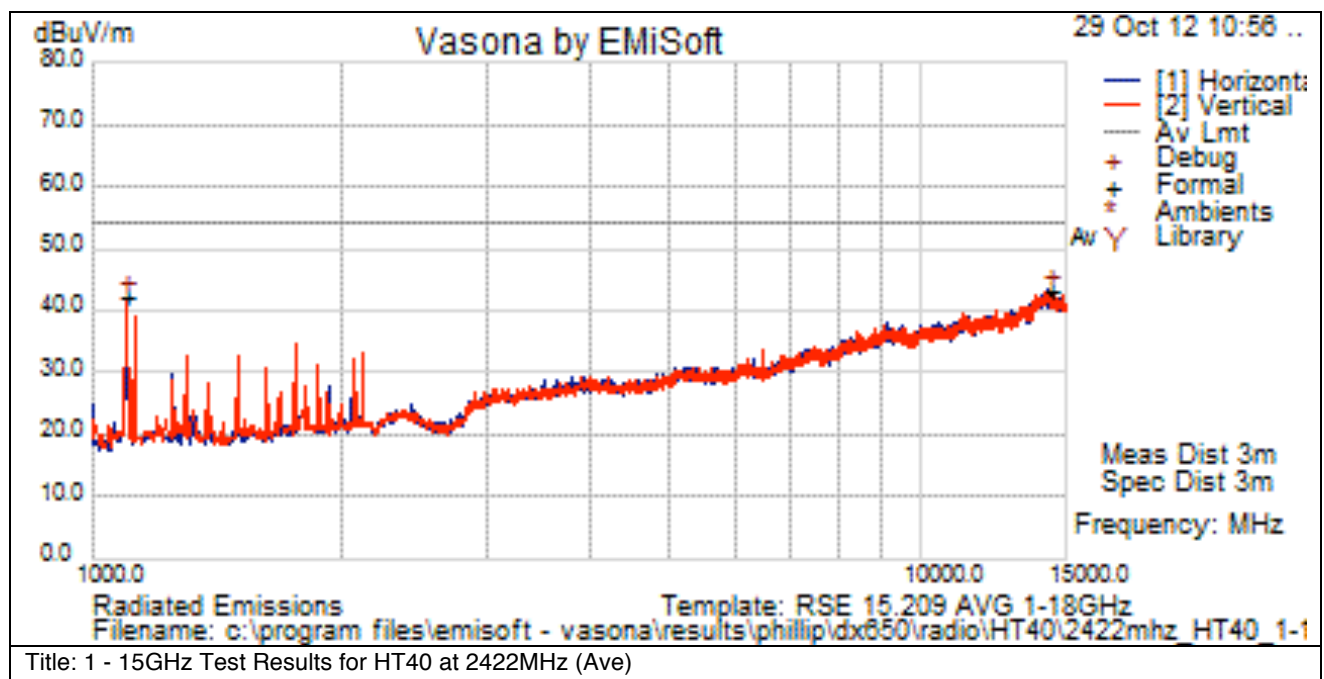
### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
14350.313	38.4	12.5	7.1	58	Pk	H	100	0	74	-16	Pass	Noise Floor



### Graphical Test Results for HT40 at 2422MHz: 1 – 15GHz (Average)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



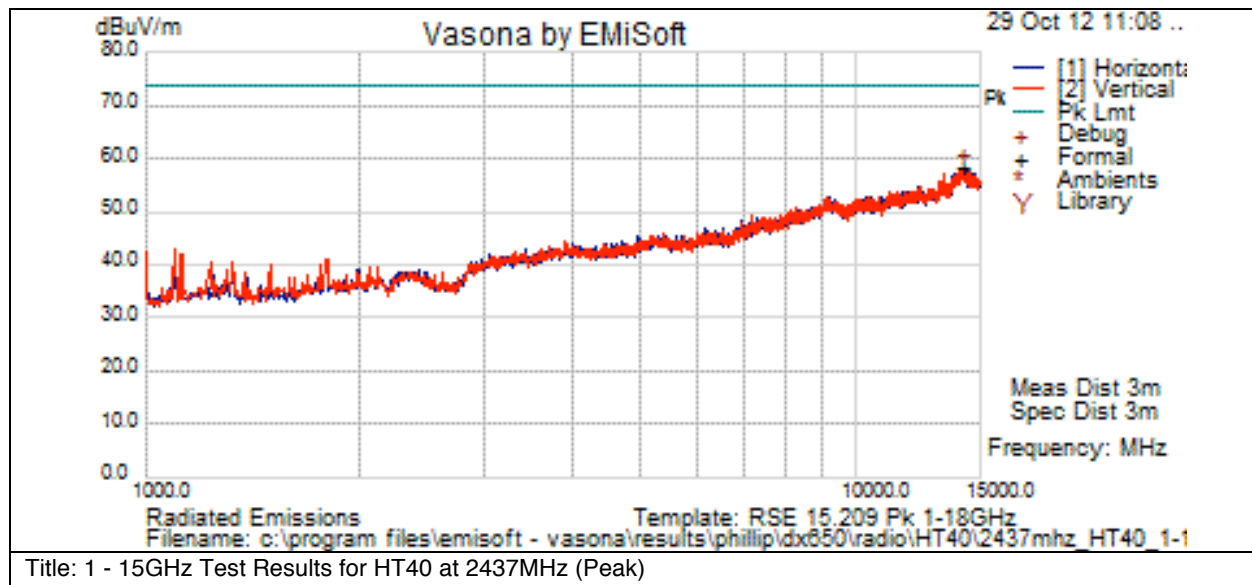
### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
14313.125	23.6	12.4	7.3	43.3	Av	H	100	0	54	-10.7	Pass	Noise Floor
1100.938	47.2	3.2	-8.2	42.1	Av	V	100	0	54	-11.9	Pass	Support Equip



### Graphical Test Results for HT40 at 2437MHz: 1 – 15GHz (Peak)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



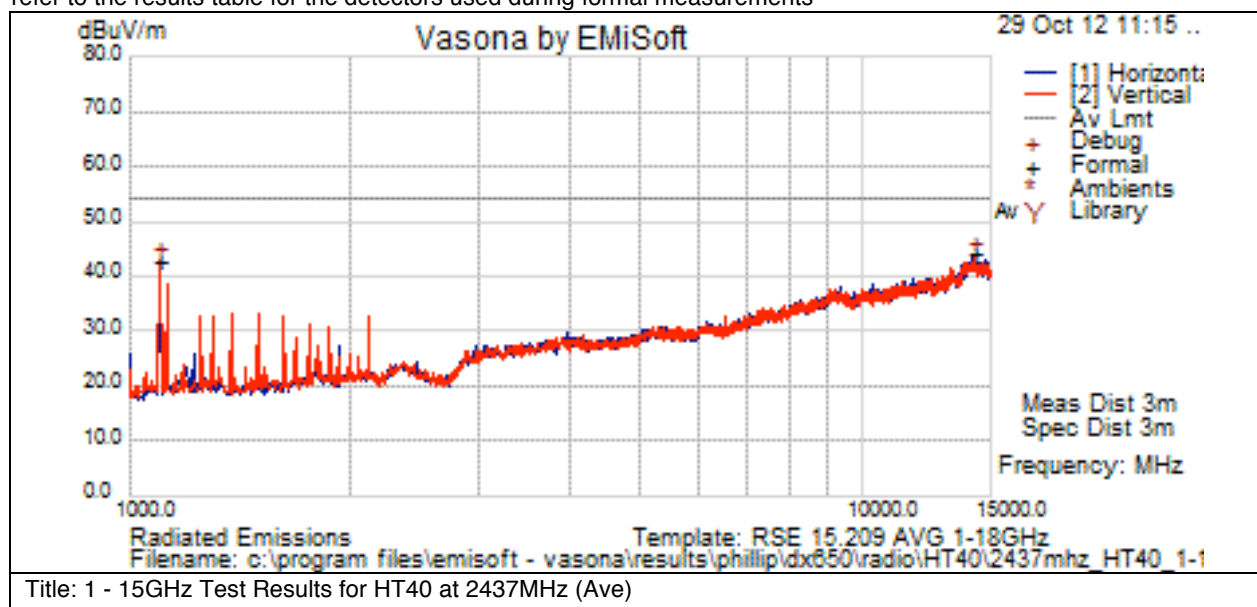
### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
14143.125	38.9	12.3	7	58.2	Pk	V	100	0	74	-15.8	Pass	Noise Floor



### Graphical Test Results for HT40 at 2437MHz: 1 – 15GHz (Average)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



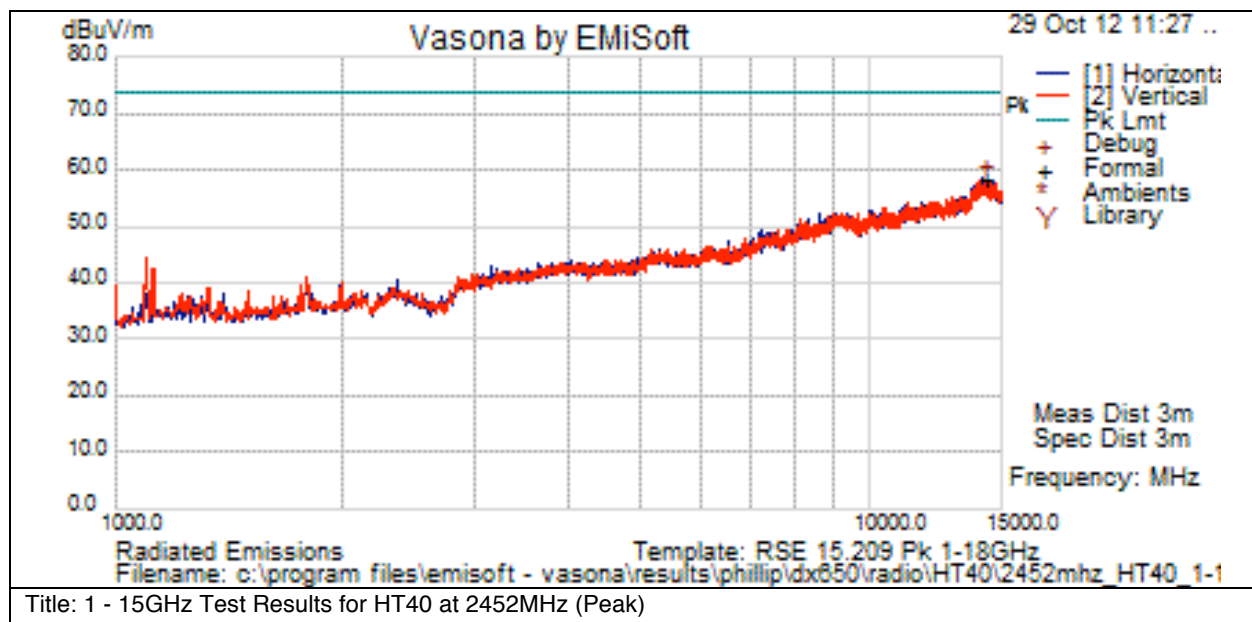
### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
14217.5	24.1	12.4	7.4	43.9	Av	H	100	0	54	-10.1	Pass	Noise Floor
1100.938	47.9	3.2	-8.2	42.8	Av	V	100	0	54	-11.2	Pass	Support Equip



### Graphical Test Results for HT40 at 2452MHz: 1 – 15GHz (Peak)

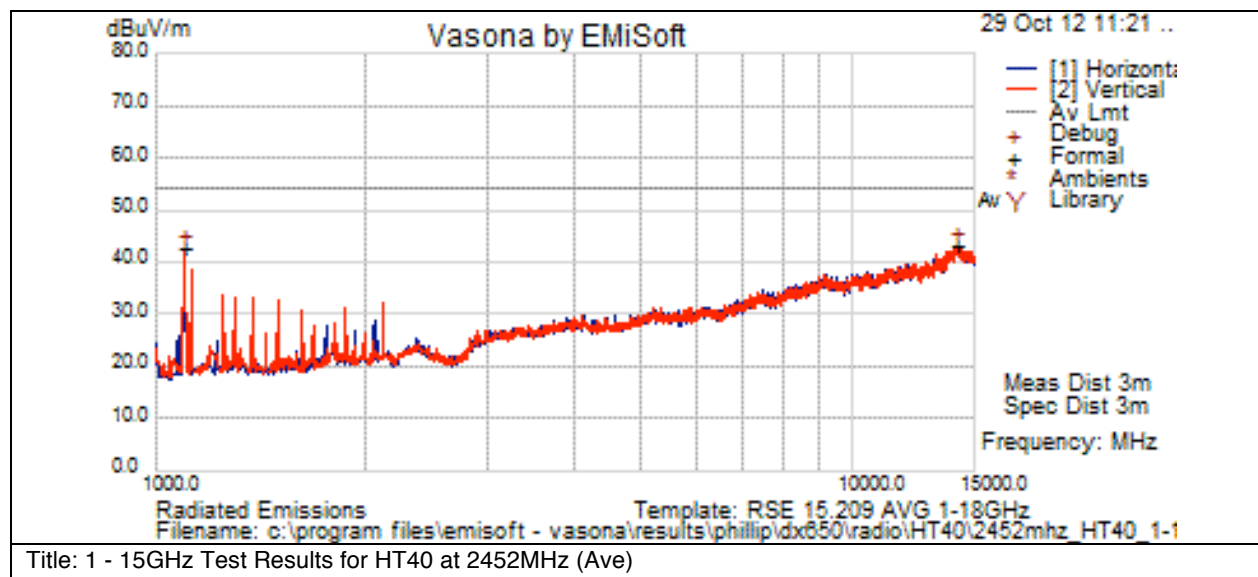
Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
14212.188	38.6	12.4	7.4	58.4	Pk	H	100	0	74	-15.6	Pass	Noise Floor

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



### Test Results Table

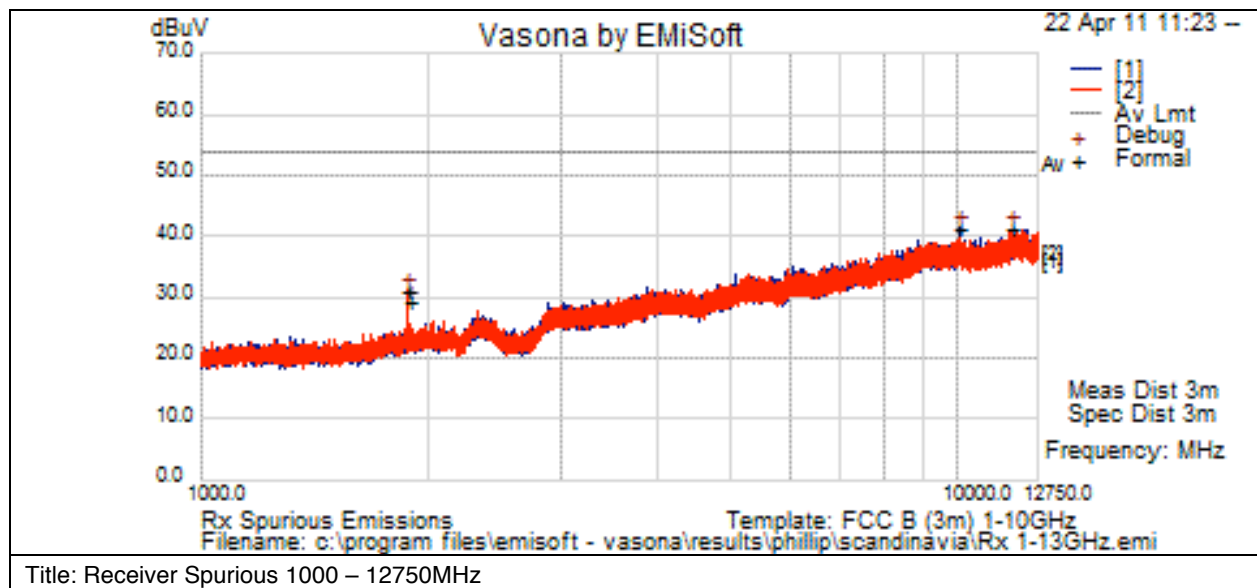
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
14121.875	23.7	12.3	7	43	Av	H	100	0	54	-11	Pass	Noise Floor
1100.938	47.7	3.2	-8.2	42.6	Av	V	100	0	54	-11.4	Pass	Support Equip





## Graphical Test Results

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



## Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
10039.9	26.2	9.5	5.6	41.3	Peak [Scan]	H	150	0	48.2	-6.9	Pass	
11746.2	24.9	10.7	5.4	41.1	Peak [Scan]	V	150	0	48.2	-7.1	Pass	
1877.2	33	3.9	-5.9	31	Peak [Scan]	V	150	0	48.2	-17.2	Pass	
1877.92	31	3.9	-5.9	29	Peak [Scan]	V	150	0	48.2	-19.2	Pass	



### **Co-Locator Radiated Spurious Emissions**

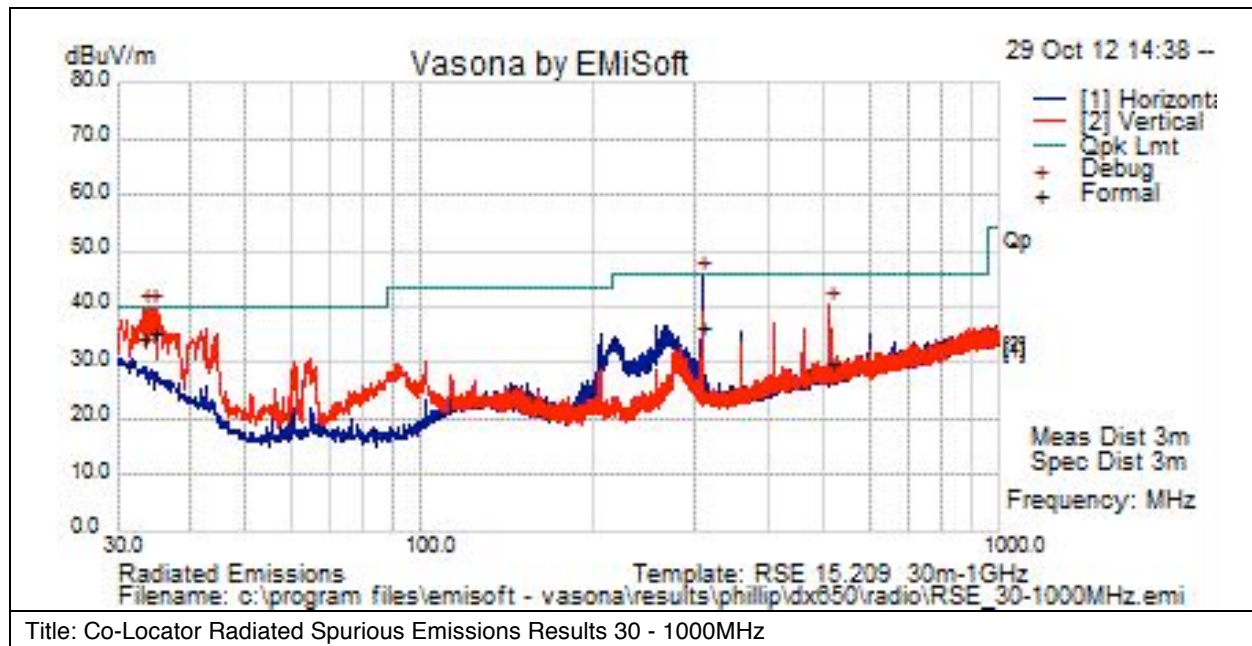
15.205 & RSS-210 sec2.7:

Radiated emissions which fall in the restricted bands, as defined in Sec. 15.205(a), must also comply with the radiated emission limits specified in Sec. 15.209(a).

**Note: All 3-axis (X,Y, Z) were evaluated during preliminary testing and the worse case orientation was for all formal testing shown below.**

### **Graphical Test Results**

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



#### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
34.38	16.9	0.5	18	35.4	Qp	V	110	66	40	-4.6	Pass	
33.179	14.9	0.5	18.9	34.3	Qp	V	105	38	40	-5.7	Pass	
307.047	21.2	1.6	13.6	36.4	Qp	H	103	97	46	-9.6	Pass	
511.908	10	2.1	17.8	29.8	Qp	V	101	148	46	-16.2	Pass	



15.205 / RSS-210 2.7: 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) (see Section 15.205(c)).

Using Vasona, configure the spectrum analyzer as shown below (be sure to enter all losses between the transmitter output and the spectrum analyzer). Place the radio in continuous transmit mode.

Span:	1GHz – 18 GHz
Reference Level:	80 dBuV
Attenuation:	10 dB
Sweep Time:	Coupled
Resolution Bandwidth:	1MHz
Video Bandwidth:	1 MHz for peak, 10 Hz for average
Detector:	Peak

Terminate the access Point RF ports with 50 ohm loads.

Maximize Turntable (find worst case table angle), Maximize Antenna (find worst case height)

Save 2 plots:     1) Average Plot (Vertical and Horizontal), Limit= 54dBuV/m @3m  
                      2) Peak plot (Vertical and Horizontal), Limit = 74dBuV/m @3m

Place a marker at the end of the restricted band closest to the transmit frequency to show compliance.  
Also measure any emissions in the restricted bands.

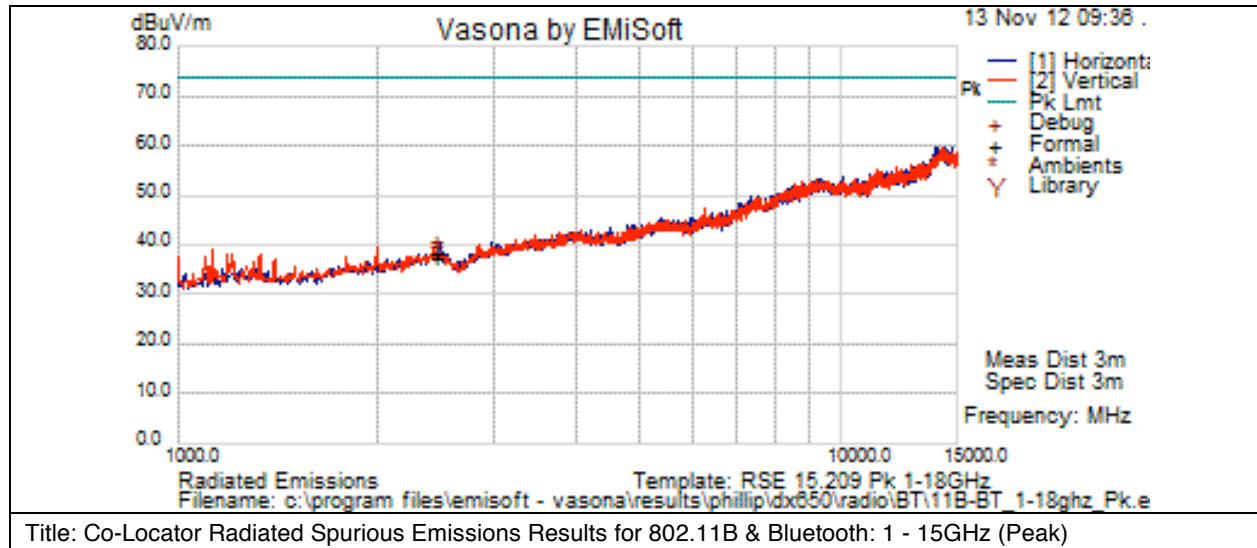
This report represents the worst case data for all supported operating modes and antennas.  
System was evaluated up to 40GHz but there were no measurable emissions above 15 GHz.

Note: A Notch Filter was used during formal testing from 1 – 15GHz to help prevent the front end of the analyzer from over loading. The Notch filters used are designed to suppress Tx fundamental frequency but do not effect harmonics of the fundamental frequency from being measured



### Graphical Test Results for 802.11B & Bluetooth (Peak)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



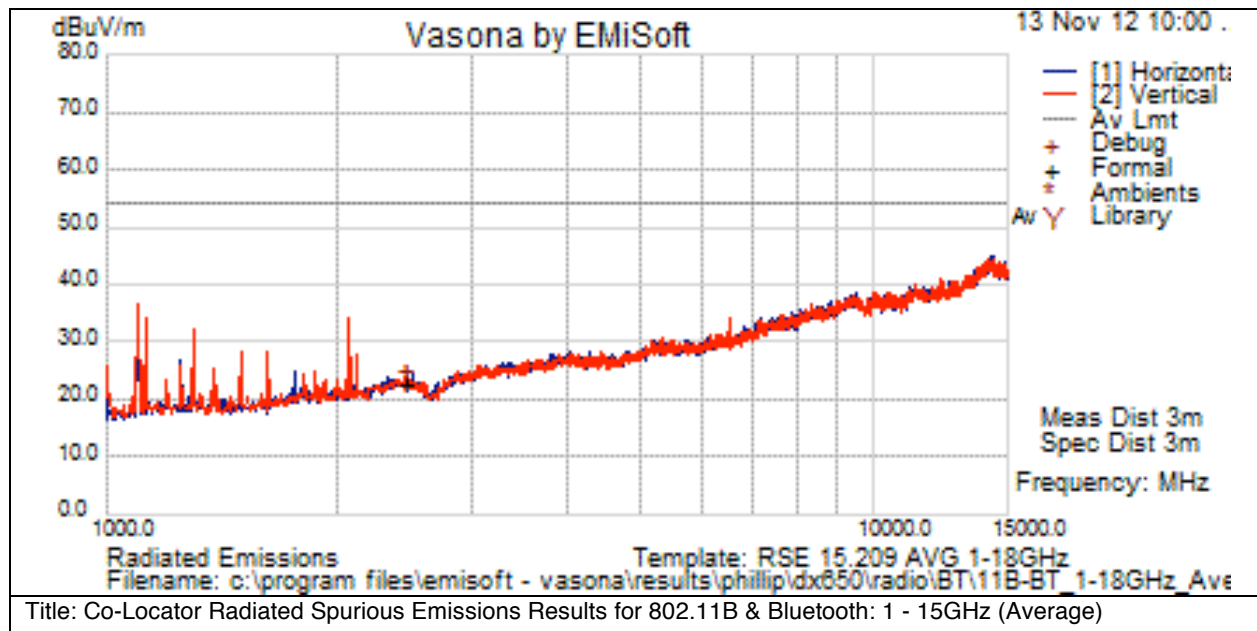
### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
2441.013	38	4.6	-5.2	37.4	Pk	H	99	360	74	-36.6	Pass	Tx Signal
2437.001	38.8	4.6	-5.2	38.2	Pk	V	99	361	74	-35.8	Pass	Tx Signal



### Graphical Test Results for 802.11B & Bluetooth (Average)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



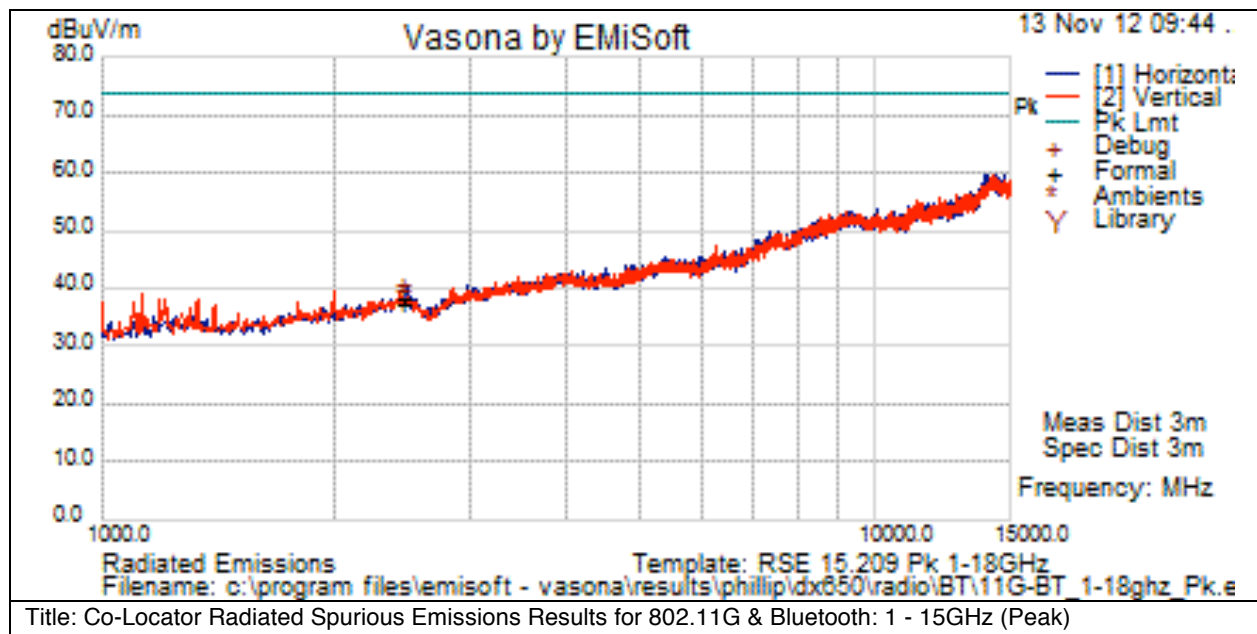
### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
2437.006	23.4	4.6	-5.2	22.8	Av	H	99	361	54	-31.2	Pass	Tx Signal
2441.08	23.4	4.6	-5.2	22.8	Av	H	99	360	54	-31.2	Pass	Tx Signal



### Graphical Test Results for 802.11G & Bluetooth (Peak)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



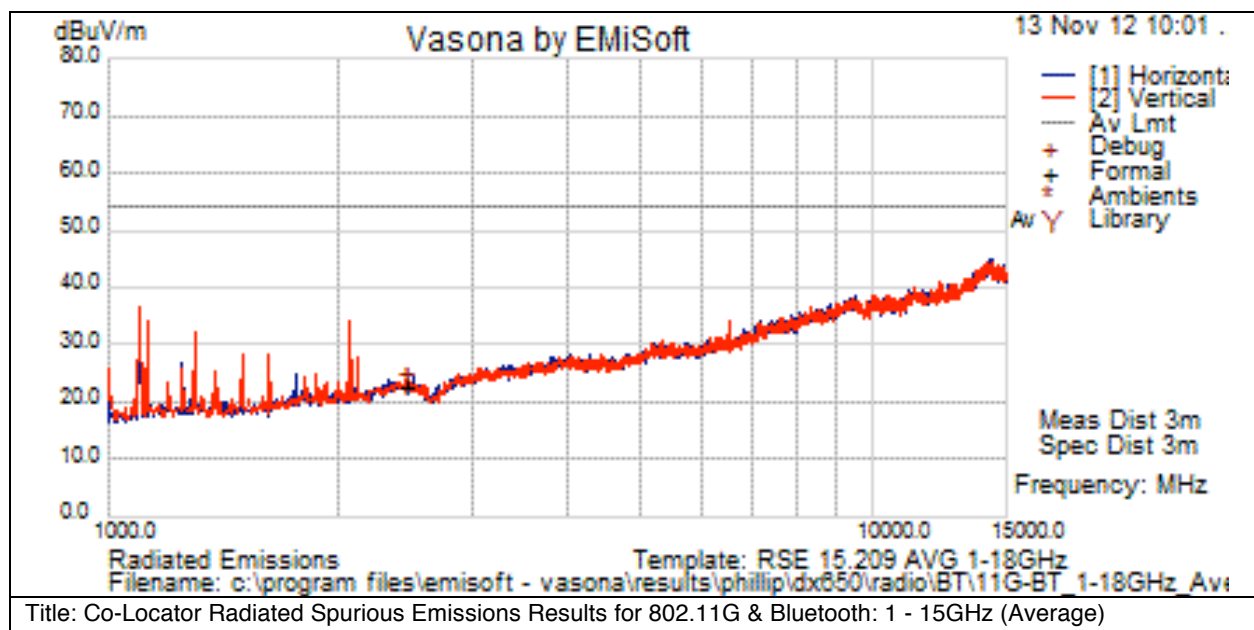
### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
2437.001	37.7	4.6	-5.2	37.1	Pk	V	99	361	74	-36.9	Pass	Tx Signal
2441.013	38.9	4.6	-5.2	38.3	Pk	H	99	360	74	-35.7	Pass	Tx Signal



### Graphical Test Results for 802.11G & Bluetooth (Average)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



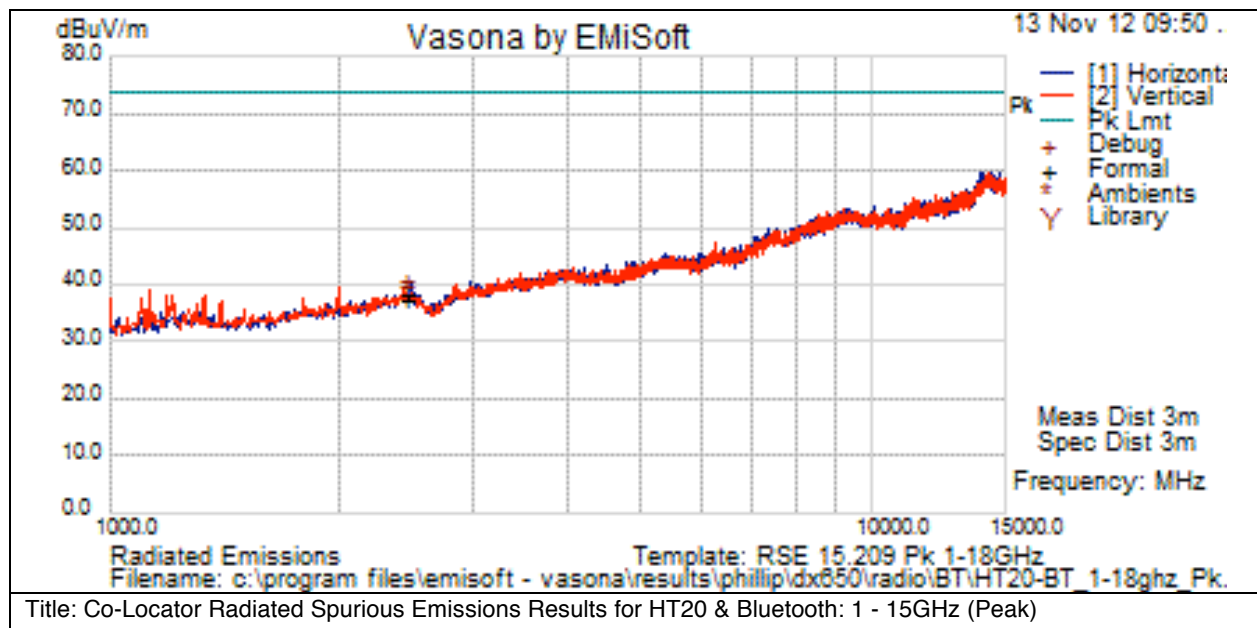
### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
2437.03	23.4	4.6	-5.2	22.8	Av	H	99	361	54	-31.2	Pass	Tx Signal
2441.001	23.4	4.6	-5.2	22.8	Av	H	99	361	54	-31.2	Pass	Tx Signal



### Graphical Test Results for HT20 & Bluetooth (Peak)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



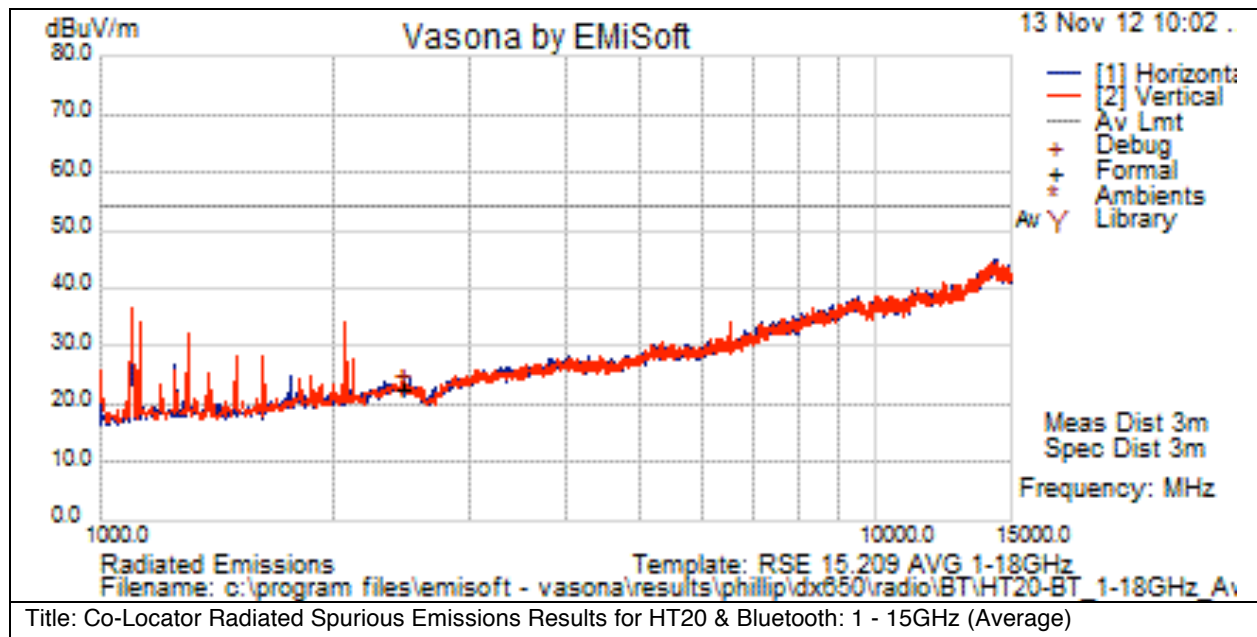
### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
2437.004	38.8	4.6	-5.2	38.2	Pk	V	99	361	74	-35.8	Pass	Tx Signal
2441.043	38	4.6	-5.2	37.4	Pk	H	99	361	74	-36.6	Pass	Tx Signal



### Graphical Test Results for HT20 & Bluetooth (Average)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



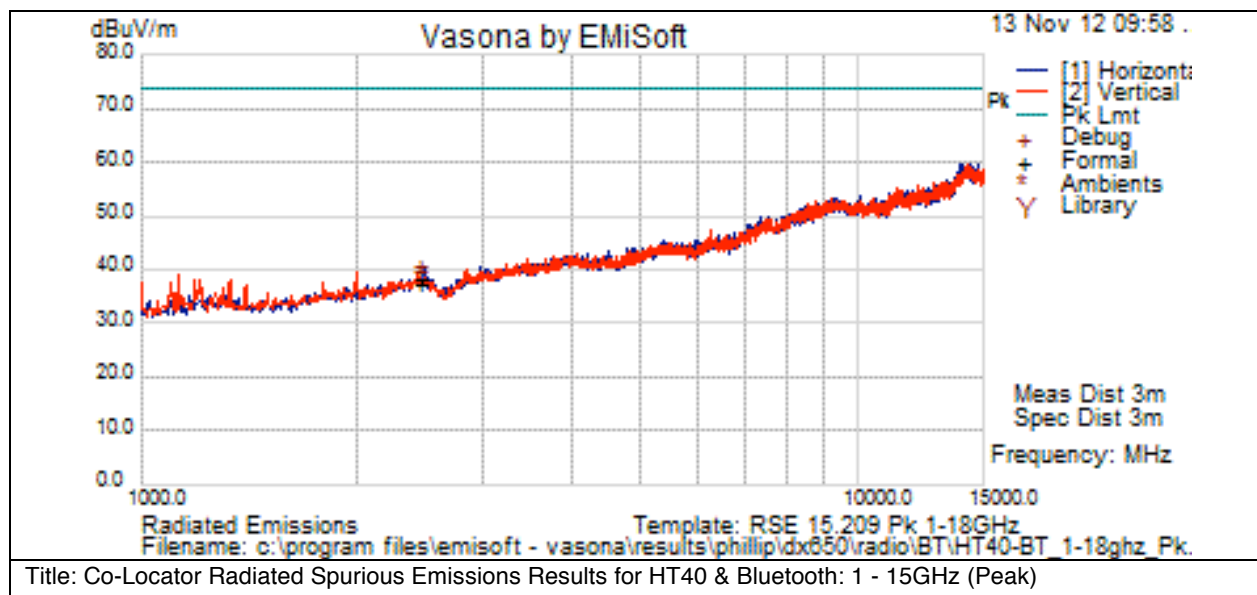
### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
2436.999	23.4	4.6	-5.2	22.8	Av	H	99	361	54	-31.2	Pass	Tx Signal
2441.001	23.4	4.6	-5.2	22.8	Av	H	99	361	54	-31.2	Pass	Tx Signal



### Graphical Test Results for HT40 & Bluetooth (Peak)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



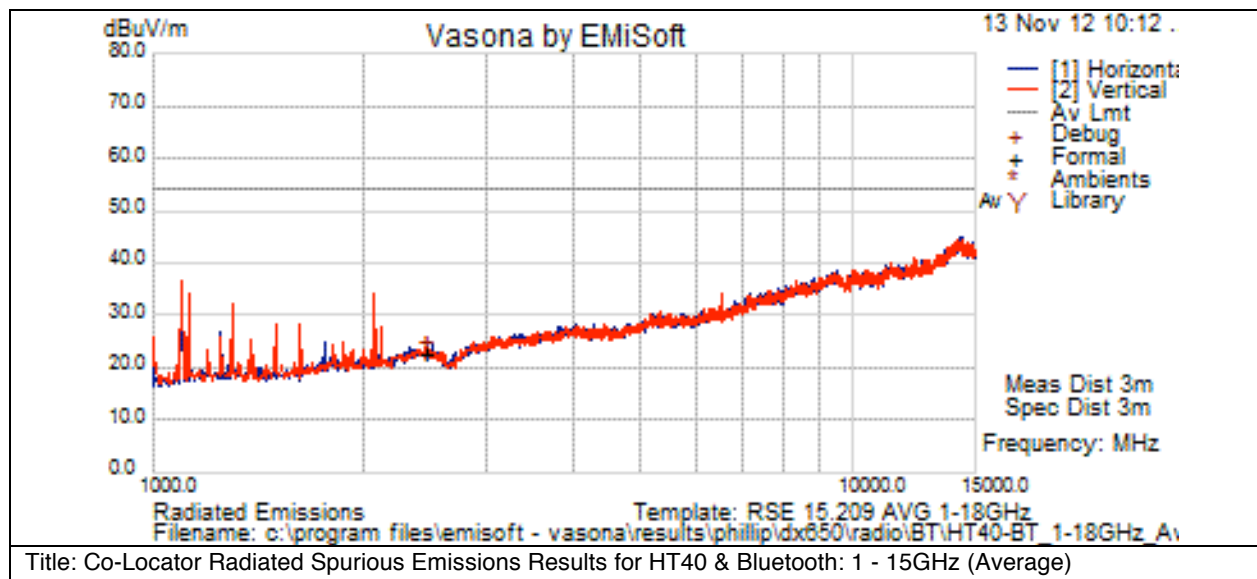
### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
2441.043	38	4.6	-5.2	37.4	Pk	H	99	361	74	-36.6	Pass	Tx Signal
2452.013	38.9	4.6	-5.2	38.3	Pk	V	99	361	74	-35.7	Pass	Tx Signal



### Graphical Test Results for HT40 & Bluetooth (Average)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements

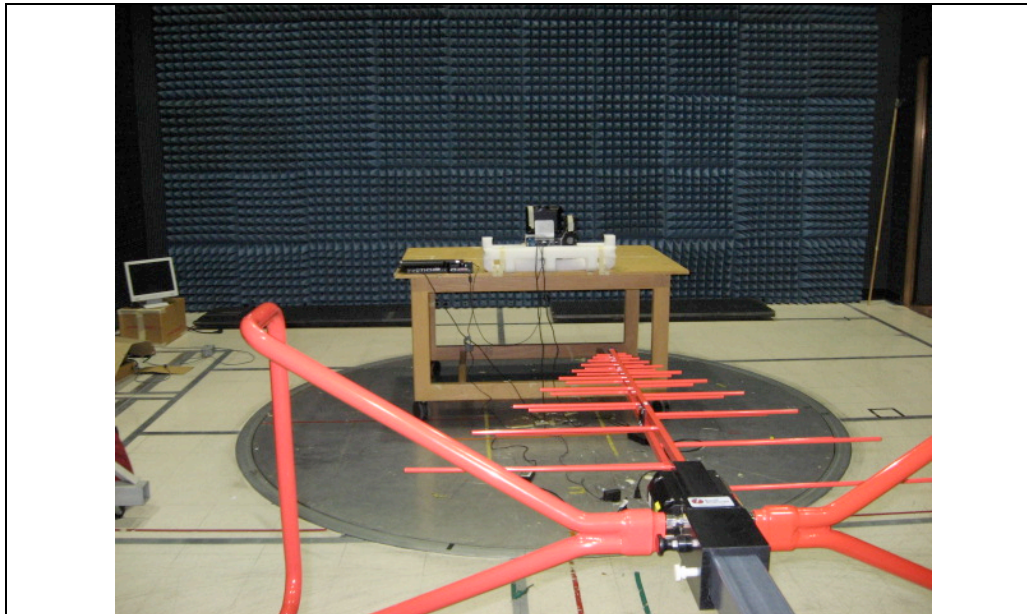


### Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
2441.001	23.4	4.6	-5.2	22.8	Av	H	99	361	54	-31.2	Pass	Tx Signal
2452.04	23.3	4.6	-5.2	22.7	Av	H	99	361	54	-31.3	Pass	Tx Signal



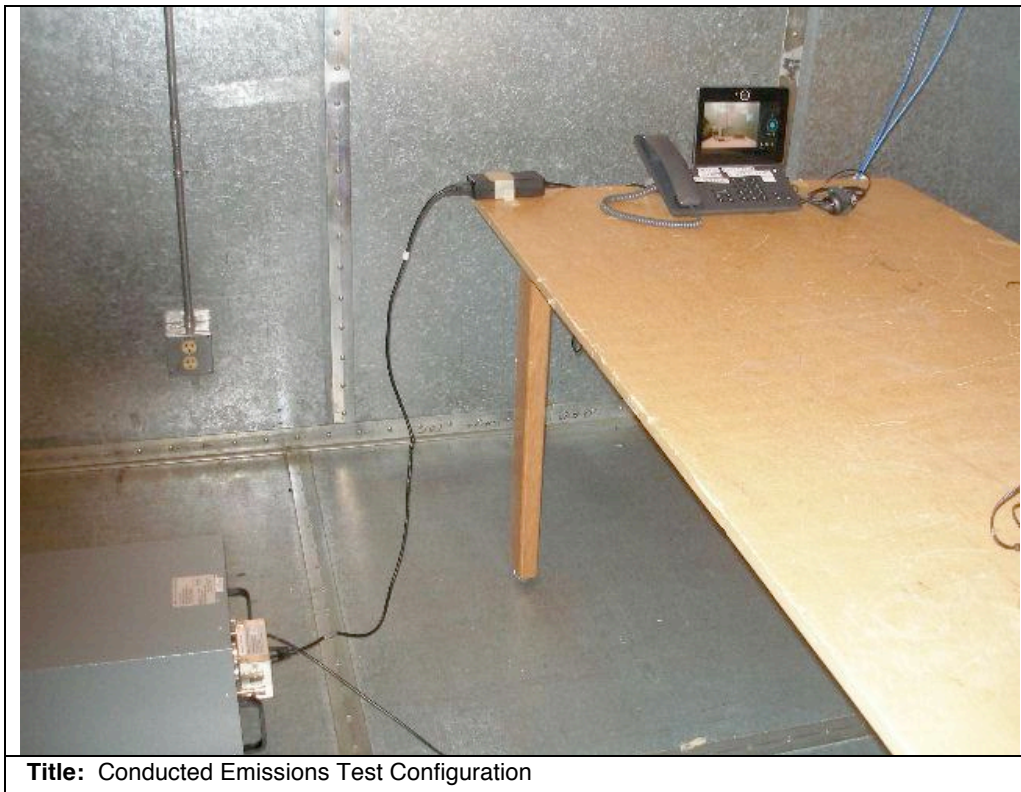
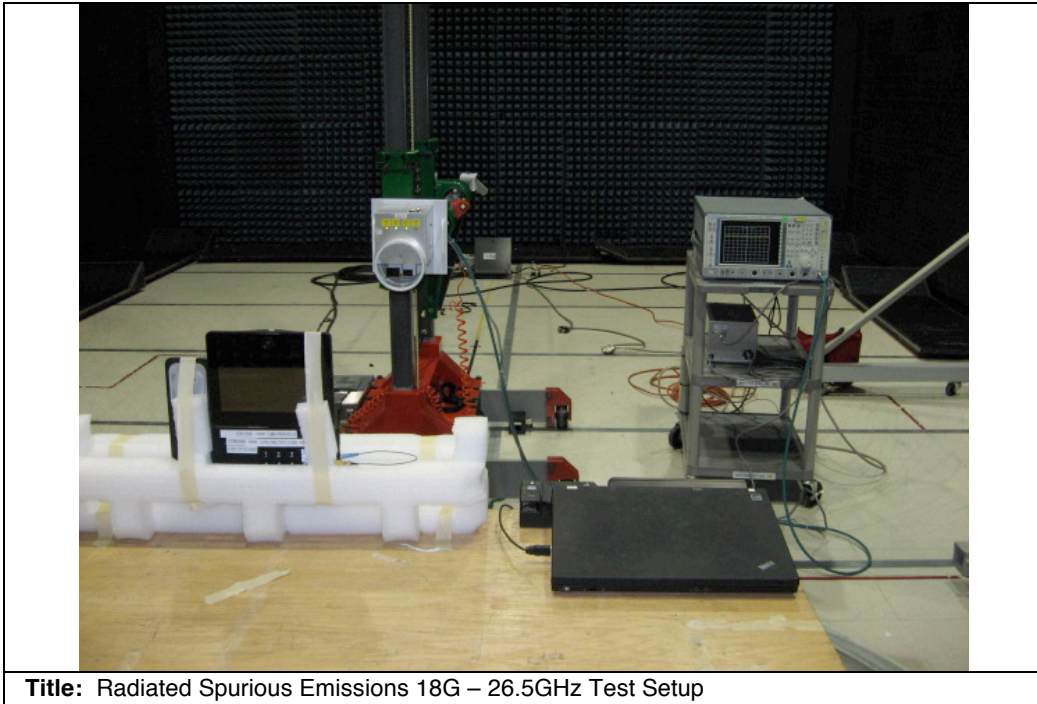
**Physical Test arrangement Photograph:**



**Title:** Radiated Spurious Emissions 30MHz – 1000MHz Test Setup



**Title:** Radiated Spurious Emissions 1 - 18GHz Test Setup





## Appendix B: Abbreviation Key and Definitions

The following table defines abbreviations used within this test report.

Abbreviation	Description	Abbreviation	Description
EMC	Electro Magnetic Compatibility	°F	Degrees Fahrenheit
EMI	Electro Magnetic Interference	°C	Degrees Celsius
EUT	Equipment Under Test	Temp	Temperature
ITE	Information Technology Equipment	S/N	Serial Number
TAP	Test Assessment Schedule	Qty	Quantity
ESD	Electro Static Discharge	emf	Electromotive force
EFT	Electric Fast Transient	RMS	Root mean square
EDCS	Engineering Document Control System	Qp	Quasi Peak
Config	Configuration	Av	Average
CIS#	Cisco Number (unique identification number for Cisco test equipment)	Pk	Peak
Cal	Calibration	kHz	Kilohertz ( $1 \times 10^3$ )
EN	European Norm	MHz	MegaHertz ( $1 \times 10^6$ )
IEC	International Electro technical Commission	GHz	Gigahertz ( $1 \times 10^9$ )
CISPR	International Special Committee on Radio Interference	H	Horizontal
CDN	Coupling/Decoupling Network	V	Vertical
LISN	Line Impedance Stabilization Network	dB	decibel
PE	Protective Earth	V	Volt
GND	Ground	kV	Kilovolt ( $1 \times 10^3$ )
L1	Line 1	$\mu V$	Microvolt ( $1 \times 10^{-6}$ )
L2	Line2	A	Amp
L3	Line 3	$\mu A$	Micro Amp ( $1 \times 10^{-6}$ )
DC	Direct Current	mS	Milli Second ( $1 \times 10^{-3}$ )
RAW	Uncorrected measurement value, as indicated by the measuring device	$\mu S$	Micro Second ( $1 \times 10^{-6}$ )
RF	Radio Frequency	$\mu S$	Micro Second ( $1 \times 10^{-6}$ )
SLCE	Signal Line Conducted Emissions	m	Meter
Meas dist	Measurement distance	Spec dist	Specification distance
N/A or NA	Not Applicable	SL	Signal Line (or Telecom Line)
P	Power Line	L	Live Line
N	Neutral Line	R	Return
S	Supply	AC	Alternating Current



**Appendix C: Test Equipment Used to perform the test**

Equip#	Manufacturer/ Model	Description	Last Cal	Next Due
CIS005972	HP 83712B	Synthesized CW Generator	21-FEB-2012	21-FEB-2013
CIS035095	Micro-Coax UFA147A-0-0180-110200	RF Coaxial Cable, to 40 GHz, 18 in	25-OCT-2012	25-OCT-2013
CIS034974	Midwest Microwave ATT-0640-20-29M-02	Attenuator, 20dB, DC-40GHz	25-MAY-2012	25-MAY-2013
CIS040514	Agilent E4440A	Precision Spectrum Analyzer	12-NOV-2012	12-NOV-2013
CIS041986	Murata Electronics MXGS83RK3000	Special Radio Test Adaptor Cable	29-MAY-2012	29-MAY-2013
CIS008024	Huber + Suhner SF106A	3 meter Sucoflex cable	05-NOV-2012	05-NOV-2013
CIS030443	Micro-Coax UFB311A-0-1560-520520	RF Coaxial Cable, to 18GHz, 156 in.	05-NOV-2012	05-NOV-2013
CIS033602	Midwest Microwave CSY-NMNM-80-273001	RF Coaxial Cable, 27ft. to 18GHz	05-NOV-2012	05-NOV-2013
CIS045588	Sunol Sciences JB1	Combination Antenna, 30MHz-2GHz	14-DEC-2011	14-DEC-2012
CIS045051	Rohde & Schwarz ESCI	EMI Test Receiver	02-NOV-2012	02-NOV-2013
CIS002119	EMC Test Systems 3115	Double Ridged Guide Horn Antenna	07-AUG-2012	07-AUG-2013
CIS008022	Huber + Suhner SF106A	1 meter Sucoflex cable	16-DEC-2011	16-DEC-2012
CIS005691	Miteq NSP1800-25-S1	Broadband Preamplifier (1-18GHz)	31-JAN-2012	31-JAN-2013
CIS030666	Micro-Tronics BRM50702-02	Band Reject Filter, Stop Band=2.4-2.5GHz	30-MAY-2012	30-MAY-2013
CIS042000	Agilent E4440A	Precision Spectrum Analyzer	29-JUN-2012	29-JUN-2013
CIS008097	Huber + Suhner/ RG-223	RG-233 Cable 9m	24-JUL-2012	24-JUL-2013
CIS004924	Rohde & Schwarz/ ESHS30	EMI Receiver (9KHz-30MHz)	29-NOV-12	29-NOV-13
035613	Micro-Tronics BRM50702-02	Notch Filter, SB: 2.4 - 2.5 GHz, to 18 GHz	30-MAY-2012	30-MAY-2013
CIS008185	Fischer Custom Communications/ FCC-450B-2.4-N	Instrumentation Limiter	01-AUG-2012	01-AUG-2013
CIS008197	TTE/ H613-150K-50-21378	Hi Pass Filter - 150KHz cutoff	10-APR-2012	10-APR-2013
CIS008394	Coleman/ RG-223	RG-223 Cable 6 ft	23-MAY-2012	23-MAY-2013
CIS008490	Bird/ 5-T-MN	5W 50 Ohm Terminator	01-JUN-2012	01-JUN-2013
CIS007036	HP/ E7401A	Spectrum Analyzer	12-SEP-2012	12-SEP-2013
CIS018981	Fischer Custom Communications/ FCC-801-M2-32A	Power Line Coupling/Decoupling Network	03-MAY-2012	03-MAY-2013
CIS020767	Fischer Custom Communications/ FCC-450B-2.4-N	Instrumentation Limiter	01-AUG-2012	01-AUG-2013
CIS023874	Fischer Custom Communications/ FCC-LISN-PA-NEMA-5-15	Power Adaptor, Polarized 120VAC	07-SEP-2012	07-SEP-2013



CIS036033	York/ CNE V	Comparison Noise Emitter	Cal Not Required	N/A
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**Appendix D: Test Procedures**

Measurements were made in accordance with

- ET docket 96-8, KDB Publication No. 558074
- Measurement method of spurious emission tolerance to the International Telecommunication Union (ITU) Recommendation SM329.
- ANSI C63.10
- ANSI C63.4

Test procedures are summarized below

6dB Bandwidth	EDCS # - 422115
26dB Bandwidth	EDCS # - 422115
Co-Located Transmitter	EDCS # - 422118
Conducted Spurious Test	EDCS # - 422119
Peak Transmit Power Measurement	EDCS # - 422123
Power Spectral Density	EDCS # - 422113
Radiated Band Edge	EDCS # - 422124
Radiated Spurious Test	EDCS # - 422125