



One evening in Sydney – a study of wireless audio usage in
Sydney.

Friday 27 March, 2009

Friday March 27, 2009 was a balmy day in Sydney. The weather had been great and the city was winding down for the weekend – a drink at the pub with friends while the band plays in the corner of the room, dinner followed by a show or maybe even an early season football match. It was an ordinary weekend in Sydney.

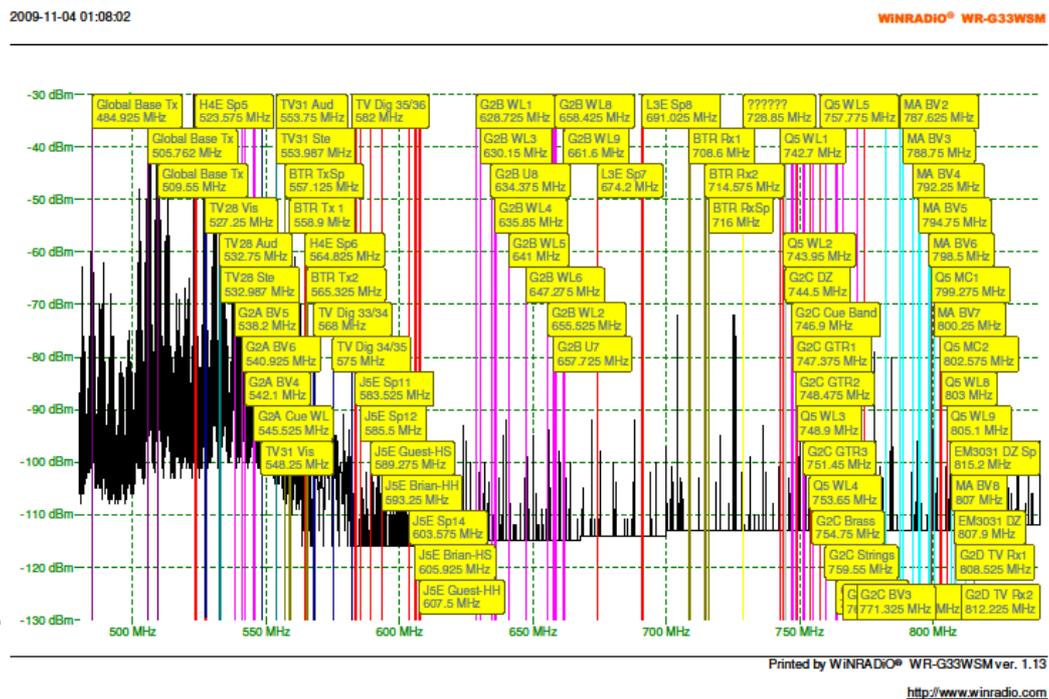
But this simplicity hides some complexity. All of these activities use and depend on wireless audio devices. Looks have a look at this evening more closely.

Sydney Entertainment Centre

The Sydney Entertainment Centre was the venue for the “Colour Your World” Conference hosted by Hillsong Church. On this particular evening the event was attended by 12 000 people and the program consisted of live music, audio visual replay and other live presentations. The music was provided by a 30 piece band, 10 singers and a 50 voice choir.

In all there were 62 wireless audio systems in use. These were required for wireless microphones, in ear monitoring and wireless communications.

This is what the spectrum looked like for this event:



Sydney Convention and Exhibition Centre – Darling Harbour

It was a big night for the Australian music industry. Darling Harbour was the venue for the MTV Australia awards. It was evening of red carpet interviews on arrival, live band performances, back stage interviews and, importantly the awards presentations themselves. Not only was the event a live performance, it was a live broadcast as well. There were approximately 74 systems in use

throughout the evening including wireless microphones, in ear monitoring systems and communication systems.

Adding to the difficulties at this venue was its geographical proximity to the Sydney Entertainment Centre. Frequency clashes and intermods were going to be an issue. An informal spectrum management system was established by the engineers, however this required constant monitoring. This vigilance was rewarded as disruption to transmissions was minimised and performances were delivered relatively cleanly.

Lyric Theatre – Star City

A little bit further down the road is Star City's Lyric Theatre. 2000 people were enjoying a performance of Andrew Lloyd Weber's "Phantom of the Opera". To facilitate this modern operatic performance, 46 wireless audio systems were deployed.

Capitol Theatre

For those with a slightly different musical taste, "Guys and Dolls" was playing at the Capitol Theatre. At this venue there were 40 systems in use and audience of 2100 people.

Sydney Football Stadium

Fans of the Wests Tigers and Sydney City Roosters were in attendance at the Sydney Football Stadium for their round 3 match of the 2009 NRL Premiership season. A typical NRL match uses approximately 20 systems for on field television commentators, radio broadcasters, referee commentary, live entertainment as well as ground announcements.

These venues are all within a 3km radius of the Sydney GPO.

So is that all that was happening in that space?

What else?

In addition to these illustrations there are a significant number of bars hosting live music and Friday is generally one of the peak trading nights in this part of the city.

This snapshot has not documented wireless audio device use in other significant venues such as the Sydney Opera House which runs 32 systems across its 4 venues each day, the Seymour Centre, City Recital Hall and other public places.

Additionally there are news crews to consider. News crews use 2 systems each – one for audio and another for a link between camera and sound. At any one time in Sydney there can be up to 16 news crews deployed across the greater metropolitan area of Sydney. There are a similar number of current affairs crews.

This is a snapshot of an evening in Sydney. In terms of wireless usage it is a typical evening. This snapshot accounts for 290 systems in use in one small part of the city and is indicative of the usage patterns in other cities across Australia. AWAG's own surveys indicate that there are over 130 000 units sold by AWAG members for in use in Australia. ABS figures indicate that approximately 32000 units are imported each year, and usage is increasing.

Theatre, television, sport, nightclubs, Live Music, Churches, Schools, Hotels, Offices, all use wireless audio systems on a daily basis. 7 days a week.

Whilst the snapshot is an illustration of one area of Sydney, at a specific time, the pattern is repeated across greater Sydney, in Melbourne and to varying degrees in all other capital cities, plus regional cities throughout Australia.

Was this a unique evening in Sydney? No. This is the bread and butter usage of wireless audio devices that will be affected by the digital dividend. It becomes even more complex when special events such as grand finals, car racing, World Cup, Papal visits have to be catered for. This snapshot has not detailed other regular users – sports clubs, schools, amateur theatres, the convention and hospitality industry and gyms.

In an already crowded spectral environment it is necessary that adequate consideration is given to these users. Planning must consider their needs as without access to adequate spectrum, these activities will stop, creating a significant economic impact on an industry that provides and estimated benefit to the Australian economy of between \$291 - \$714 million.¹

¹ 10 Year present value estimate - "Untethering the microphone: An economic study of the benefits of wireless audio visual devices in Australia" Windsor Place Consulting, April 2008, p3.

News and current affairs

Approx 58 systems city wide



Lyric Theatre

46 Systems

MTV Awards

74 systems

Sydney Entertainment Centre

62 Systems

Capitol Theatre

40 systems

Sydney Football Stadium

20 systems

Wireless Audio Sales Data 03-09

AWAG Members

Update May 20
2009

Transmitter Freq	Estimated Sales F09	Units Sold FY08	Units sold FY07	Units sold FY06	Units sold FY05	Units sold FY04	Units sold FY03	Total Units
520-540MHz	2		4	36	6	0	0	48
540-560MHz	218	246	16	115	31	214	258	1098
560-580MHz			6	34	0	0	0	40
580-600MHz			0	0	136	164	184	484
600-620MHz	78	42	0	2	609	872	730	2333
620-640MHz	826	718	1629	711	1406	1277	992	7559
640-660MHz	749	863	6	3	7	13	9	1650
660-680MHz	490	631	8	8	28	12	8	1185
680-700MHz			8	4	5	9	13	39
700-720MHz	2749	3406	579	499	376	314	462	8385
720-740MHz	355	433	1343	1698	1210	255	254	5548
740-760MHz	1435	817	558	501	266	253	242	4072
760-780MHz	246	766	1478	909	918	1125	1158	6600
780-800MHz	4118	1473	2561	2865	2685	2798	1489	17989
800-820MHz	3086	3196	7325	5714	7937	9124	7695	44077
Total	14352	12591	15521	13099	15620	16430	13494	101107

Spectrum spread	
700-820Mhz units 03-07	87.09%
700-820Mhz units 03-09	85.72%

Summary of Imports F1998 to F2007*

Based on data provided by the Australian Bureau Of Statistics

Year	Unit Imports	% by AWAG members
1998	34292	n/a
1999	31670	n/a
2000	29068	n/a
2001	24865	n/a
2002	32925	n/a
2003	33147	36.80%
2004	35245	41.99%
2005	35665	38.91%
2006	29865	39.46%
2007	34584	42.08%
Average	32304	39.84%