

# DIGITAL RADIO TRIAL IN THAILAND



**NONGLUCK WATCHARAKIATIPONG**  
**NBTC, THAILAND**



# CURRENT STATUS

## **NBTC Notification on Radio Frequency Plan for Trial Digital Radio**

(Effective on 28 Feb 2018)



**allocating VHF Band III  
(174-230 MHz) for trial digital  
radio**

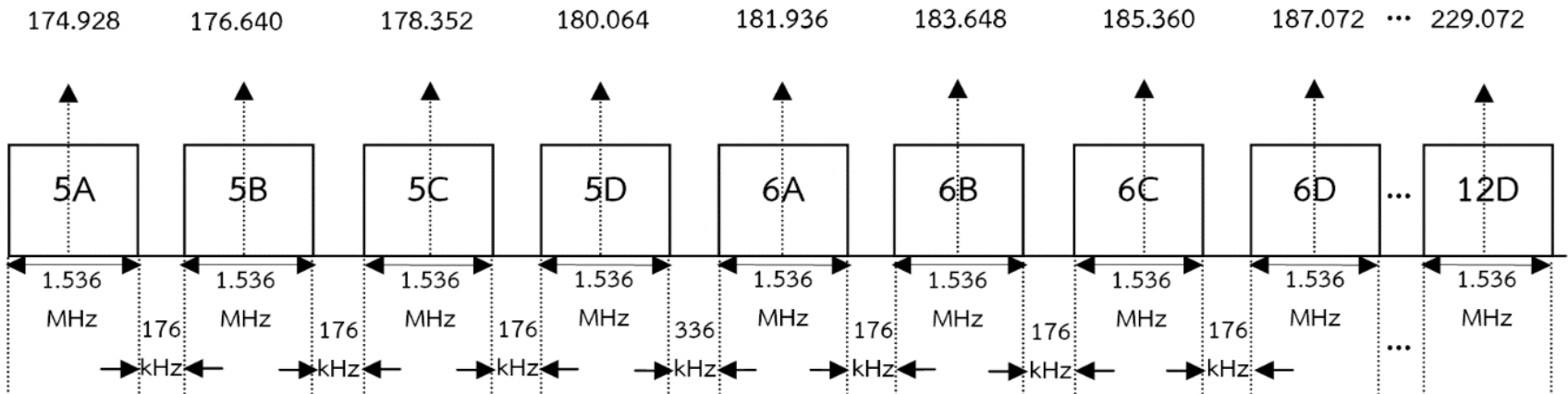


**Current service being  
operated in VHF Band III is  
analogue television (26  
stations), which needs  
protection from digital radio  
interference until its  
contract or concession  
ends.**

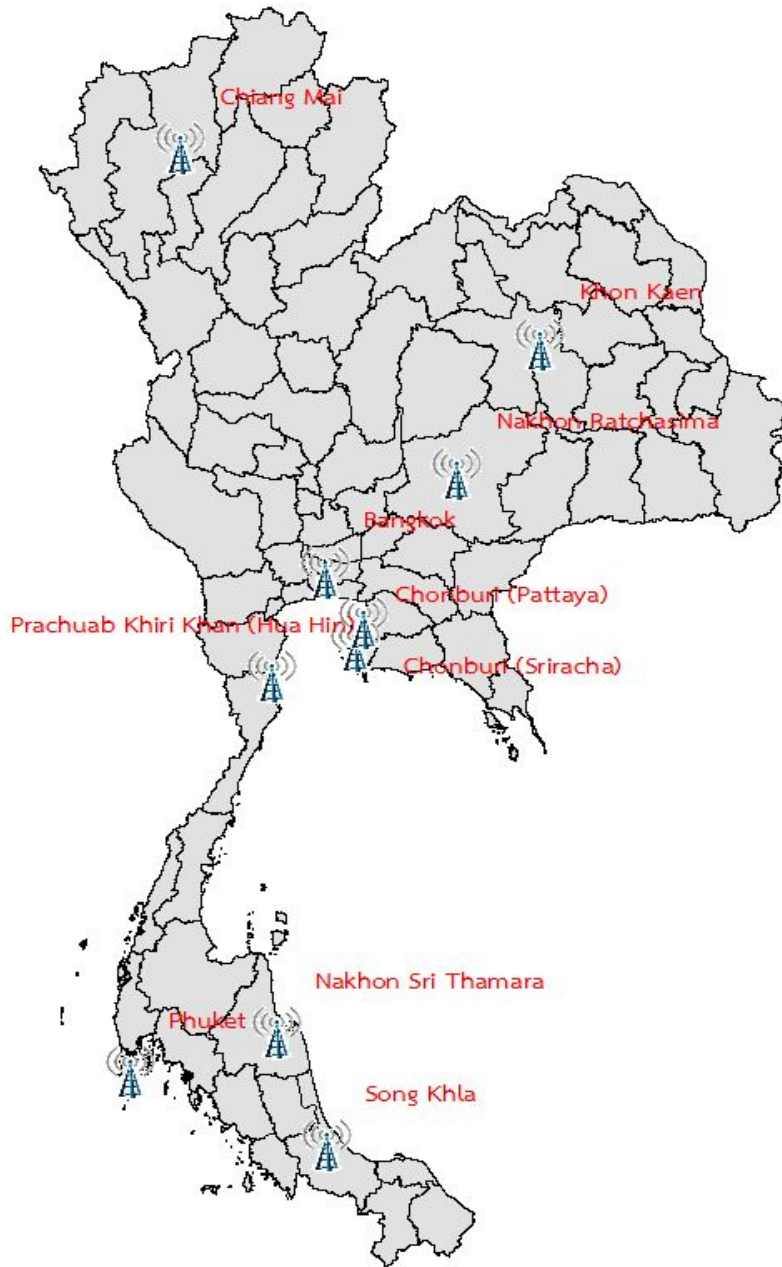


# FREQUENCY PLANNING FOR DIGITAL RADIO

Technical Parameters	
Mode	DAB+ Mode I
Audio Coding	MPEG-4 High Efficiency Advanced Audio Coding version 2 (HE AAC v2)
Multiplex	Orthogonal Frequency Division Multiplex (OFDM)
Modulation	Differential Quadrature Phase Shift Keying (D-QPSK)
Protection Level	3A
Code Rate	$\frac{1}{2}$
C/N Value	12 dB (Rayleigh Channel)
Bandwidth/Block	1.536 MHz
Total Capacity/MUX	1,152 kbps
Capacity/Program	64 – 128 kbps
Number of Programs/MUX	9 – 18 Programs
Effective Radiated Power	0.1 kW - 10 kW
Transmission Frame Duration	96 ms
Duration of the Null Symbol	1.297 ms
Duration of an OFDM Symbol	1.246 ms
Number of OFDM Symbols	76
Bandwidth	1.536 MHz
Number of Transmitted Carriers	1,536
Inverse of the Carrier Spacing	1 ms
Guard Interval	246 $\mu$ s



# DIGITAL RADIO TRIAL STATIONS



**9 provinces, 10 sites**

- Bangkok
- Chiang Mai
- Chonburi (Sriracha & Pattaya)
- Khon Kaen
- Nakhon Ratchasima
- Prachuab Khiri Khan
- Nakhon Sri Thamara
- Phuket
- Song Khla



**Each site uses 3 multiplexes (except Song Khla, using 2 multiplexes)**

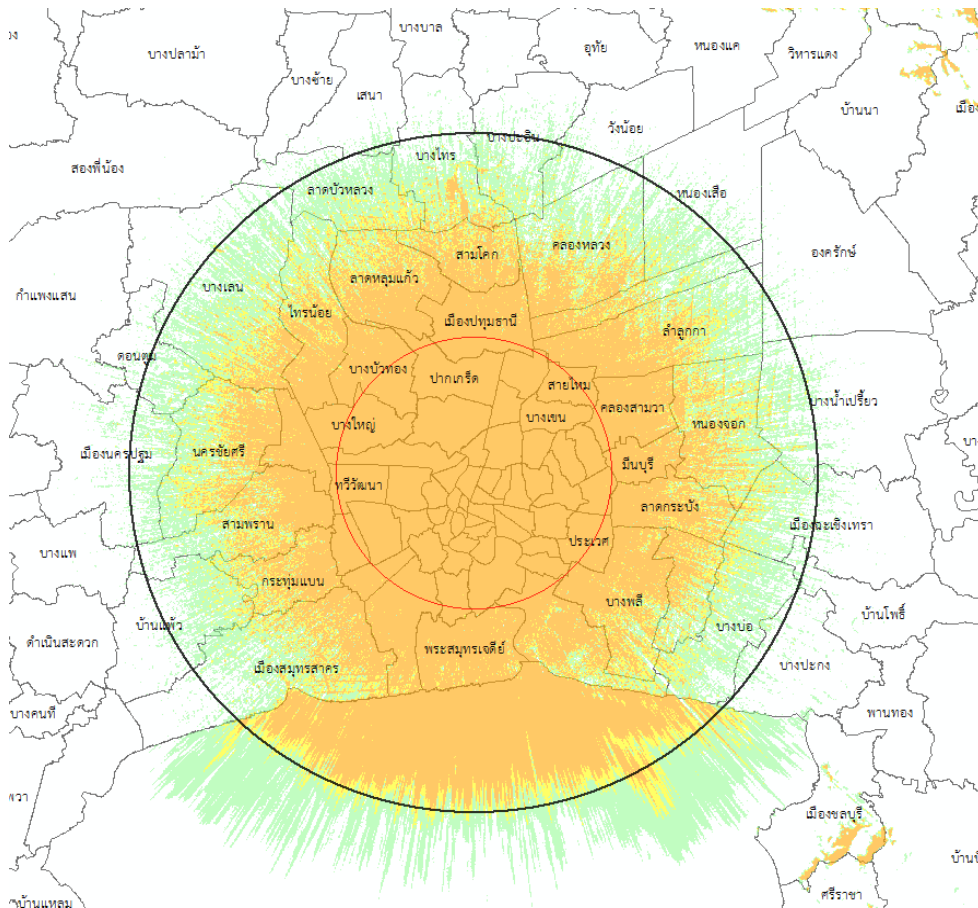


**Single Frequency Network (Bangkok, Chonburi)**

# COVERAGE AREA FOR TRIAL DIGITAL RADIO

Site	MUX 1		MUX 2		MUX 3	
	HH Coverage	Area (km <sup>2</sup> )	HH Coverage	Area (km <sup>2</sup> )	HH Coverage	Area (km <sup>2</sup> )
1. Bangkok	4,472,701	4,857.0	4,074,402	4,193.8	3,285,217	1,619.1
2. Chiang Mai	491,286	3,118.8	487,899	3,022.8	484,942	2,942.8
3. Chonburi						
3.1 Sriracha (MCOT)	Include BKK10C		377,175	1,118.6	359,271	1,045.3
3.2 Pattaya (TV5)	Include BKK10C		Include CBI10B		Include CBI10D	
4. Prachuap Khiri Khan	160,708	4,831.6	117,098	2,511.8	98,573	1,552.1
5. Khon Kaen	318,676	3,984.8	316,632	3,931.7	197,773	1,607.6
6. Nakhon Ratchasima	251,532	1,858.7	219,246	1,264.9	170,495	765.9
7. Nakhon Sri Thamarat	87,656	612.2	85,311	578.8	83,214	547.0
8. Song Khla	242,680	2,189.6	205,919	1,148.5	0	0
9. Phuket	149,344	2,422.9	146,329	2,034.2	144,814	1,996
<b>TOTAL</b>	<b>6,174,583</b>	<b>23,876</b>	<b>6,030,011</b>	<b>19,805</b>	<b>4,824,299</b>	<b>12,076</b>

# COVERAGE AREA : BANGKOK




✓ **Bangkok Station: 6C**

✓ **Effective Radiated Power: 5kW**

✓ **Coverage Area: 4,857km<sup>2</sup>**

✓ **Population: 4,472,701 households**



**Thank you!**  
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