

- WRC 07 reallocated the 800MHz band from broadcasting to mobile services (digital dividend)
- WRC 12 did not include any proposal for a second digital dividend at 700 MHz in the initial agenda
- a proposal to take further spectrum currently allocated for broadcasting and make it available for mobile services by the Arab and African regional administrations



- Compromise reached and supported by all regional organisations at WRC-12:
 - Allocation of the band 694-790 MHz to the mobile service in, co-primary with broadcasting, and identified for IMT, however, the allocation will be effective only after WRC-15
 - Refinement at WRC-15 of the lower edge of the allocation (694 MHz) and definition at WRC-15 of the technical and regulatory conditions applicable to the mobile service in this band

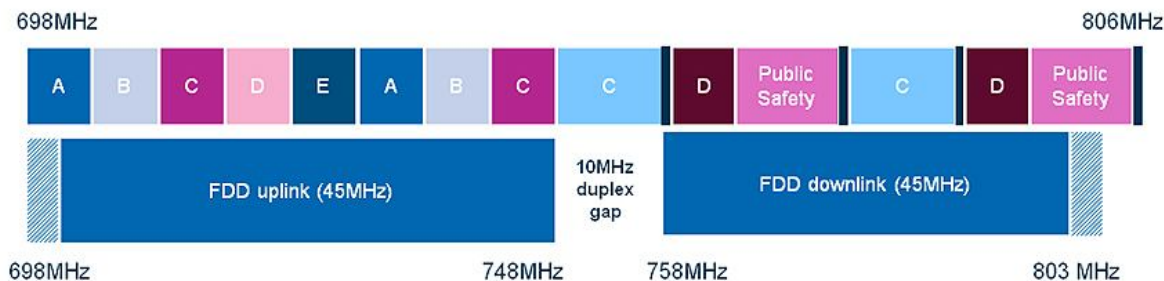


Figure USA and parts of the Asia–Pacific current regional 700MHz band plans [Source: Analysys Mason, 2012]

GSA on LTE at 700 MHz



- The Global mobile Suppliers Association (GSA) said in April 2012 report of the 347 LTE devices that have so far been unveiled, 170 run on U.S. digital dividend spectrum in the 700-MHz band
 - 94 devices operate in the 2.6-GHz band
 - 72 in the 800-MHz band (Europe)
- "The majority of LTE user devices today support the 700-MHz band where LTE networks and services are developing fastest, especially in North America," said the GSA, in a statement.
- Ofcom UK launched 700 MHz [consultation](#).

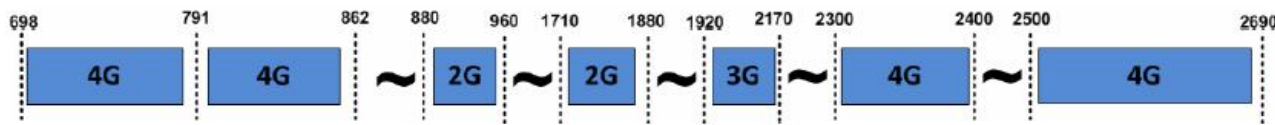


Figure Frequencies for LTE in Russia according to the Decision of the SRFC 11-12-02



NEW RADIO SERVICES IN THE 800 MHz BAND

- LTE standardisation in 800 MHz by 3GPP
 - 3GPP RAN WG4

- LTE Harmonised standards in 800 MHz by ETSI
 - ETSI ERM/MSG TFES

- ETSI activities on the subject
 - ETSI ERM TG17
 - ETSI ATTM AT3
 - ETSI ERM EMC

- WG4 works on the RF aspects of UTRAN/E-UTRAN. RAN4 performs simulations of diverse RF system scenarios and derives the minimum requirements for transmission and reception parameters, and for channel demodulation.
- Once these requirements are set, the group defines the test procedures that will be used to verify them (only for BS). Requirements for other radio elements, like Repeaters, are specified in the RAN4 as well.



[3GPPRAN4#64](#)

13 - 17 Aug 2012, China

LTE parameters in 800 MHz



3GPP bandplan for Band Class 20

3GPP bandplan for class 20	Downlink (DL) operating band BS transmit UE receive			Uplink (UL) operating band BS receive UE transmit			Duplex Mode
	$F_{DL_low} - F_{DL_high}$			$F_{UL_low} - F_{UL_high}$			
20	791 MHz	–	821 MHz	832 MHz	–	862 MHz	FDD

3GPP bandplan for class 20	TX - RX carrier centre frequency separation
20	41 MHz

- 3GPP TS 36.101 v10.2.1 Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) radio transmission and reception

<http://www.3gpp.org/ftp/Specs/html-info/36101.htm>

- EC Decision on harmonised technical conditions of use in the 790-862 MHz frequency band for terrestrial systems capable of providing electronic communications services in the European Union (2010/267/EU)
 - UE maximum output power 23 dBm +/-2 dB

- 3GPP TS 36.104 v10.2.0 Evolved Universal Terrestrial Radio Access (E-UTRA); Base Stations (BS) radio transmission and reception

<http://www.3gpp.org/ftp/Specs/html-info/36104.htm>

- EC Decision on harmonised technical conditions of use in the 790-862 MHz frequency band for terrestrial systems capable of providing electronic communications services in the European Union (2010/267/EU)
 - Technical conditions for BS (EIRP limit, emissions mask) are given in the Annex 3 of the ECC Decision.



● MSG is responsible for the conversion of 3GPP™ deliverables into ETSI deliverables.

● The task force is responsible for developing European Norms (ENs) intended to become Harmonised Standards under the R&TTE Directive



- [MSG#30](#)
26-28 June 2012, Sophia Antipolis
- [ERM#47](#)
18-22 June 2012, Norway
- [MSGTFES#37](#)
12-14 June 2012, Finland

- Digital Dividend didn't just boost technological developments, but also changed regulatory environment for broadcasting
 - Revision of RTTED: Keeping broadcast receivers outside the scope of the Directive is hard to apply. Place all receivers under the Directive while keeping open the option of regulating the interoperability aspects
 - It's not anymore "exclusive use", but fragmented (new services are being introduced in the band)
 - It's not receive only band, but receive-transmit. It's becoming a "communications" band.
 - Logically regulation for broadcast receivers need to be the same as for other communication systems. Technologies co-existence issues to be addressed.

- ETSI TC ERM TG17 - Standards for broadcast and ancillary communications equipment (tuners, domestic aerials and amplifiers)
 - The purpose of TG17 is the preparation of draft ETSI Harmonised Standards covering the essential requirements for Article 3.2 of the R&TTE Directive for broadcast transmitters, sound and vision, using analogue and digital modulation
- ETSI TC ATTM AT3 – Standards for integrated broadband cable and television networks (cables, in-home cabling and cable network components)
 - AT3 is responsible for the creation, development and maintenance of Standards and other ETSI deliverables related to integrated broadband cable and television networks technologies

- ETSI TC ERM EMC - Electromagnetic Compatibility
 - ERM EMC prepares ETSI deliverables or parts thereof covering EMC requirements and carries out work on methods of measurements for EMC parameters not related to the antenna port of radio equipment

- Potentially, TC BRAN, JTC BROADCAST and TC RRS

- As a result of the two workshops and the [report from ETSI-CENELEC](#), there is now clarity that the risk of interference or disturbance between cable networks and planned mobile networks is manageable. Work has begun in order to update immunity requirements in the [relevant standards](#) issued by ETSI and CENELEC. A list of possible mitigation techniques that can be applied between now and the availability of equipment in accordance with the revised standards have been identified. Consequently, the probability that disturbance or interference will actually occur in practice is low.

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Thank you!