

Coordination agreement relating to DTT in the band 470 – 694 MHz between Estonia and Sweden

Background

Estonia and Sweden have decided to use the frequency band 694 – 790 MHz for electronic communication services other than broadcasting in the future.

The intention during the negotiations has been to find a common final planning solution enabling at least seven layers in each country.

Changes to the GE06 Plan and subsequent associated bilateral agreements

Allotments added

The frequency channels marked in yellow for the following Allotments are accepted by the Administrations of Estonia and Sweden respectively as additions to the GE06 Plan. If the allotment bears no remark, implementation conditions according to ANNEX 1 of this agreement apply. The frequency channels marked in green are the existing ones in the GE06 Plan.

Allotments – Estonia

PÄRNU	26	32	36	24	34	38	41	46	
VALGJÄRVE	23	25	35	40	47	43	44		
ORISSAARE	22	29	34	38	46	24	26	36	
KOERU	27	39	41	43	44	25	46	47	
TALLINN	25	28	30	37	42	45	33	34	38
KOHTLA	29	31	33	34	46	48	35	42	

Allotments – Sweden

EMMABODA	21	28	31	45	46	47	26	34	36
GAEVLE	24	27	30	46	26	34	43		
NORRKOEPING	28	32	36	46	31	34	43	47	
STOCKHOLM	23	39	42	21	31	32	43	45	
UPPSALA	21	33	40	43	24	26	29	30	
VISBY	37	41	44	48	22	24	31	34	
VAESTERVIK	24	26	30	34	40	43	27	38	
OESTHAMMAR	26	40	43	48	24	30	34		

Assignments added

Estonian assignments with characteristics according to ANNEX 2 of this agreement are accepted by Sweden and could be implemented according to conditions of the Annex.

Swedish assignments with characteristics according to ANNEX 3 of this agreement are accepted by Estonia and could be implemented according to conditions of the Annex.

Revision and cancellation

Revision to this agreement can only be made if both parties agree.

This Agreement may be cancelled as desired by one of the Parties with a notice of at least 12 months.

Entry into force

This agreement will enter into force upon the signature of both parties.

Place Warsaw

Date 21.06.2016

For the Estonian Technical Regulatory Authority



Arvo Rammus

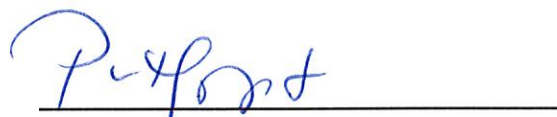
Adviser

Estonian Technical Regulatory Authority

Place Warsaw

Date 21/06.2016

For the Swedish Post and
Telecom Authority



Pia Högset

Head of Section for Spectrum Development
Spectrum Department, PTS

ANNEX 1 – Implementation conditions

Interfering field strength requiring coordination

If the cumulative interfering field strength exceeds the values listed in Table 1 below on the boundary of any co-channel allotment in the GE06 Plan, coordination with the other party is needed.

For affected DVB-T allotments the $E_{\max \text{ int}}$ in Table 1 should be used (irrespective of the technical characteristics of the plan entry).

DVB-T interfered by DVB-T for 650 MHz

Assumed reception case	Portable outdoor reception (RPC2)
Reference location probability	95 %
Reference C/N [dB]	19
Reference ($E_{\text{med}}\text{ref}$) [dB μ V/m] at 650 MHz	78
CF	12.8
Implementation margin (IM)	3
$E_{\max \text{ int}}$ [dB μ V/m] at 650 MHz	49

Table 1 $E_{\max \text{ int}}$ for DVB-T interfered by DVB-T

In UHF the value should be adjusted with respect to frequency with $20 \cdot \log(f/f_{650})$, f in MHz.

Derivation maximum allowable interfering field strength

The maximum allowable interfering field strength, $E_{\max \text{ int}}$, at any test point given by the input requirement is calculated as follows:

$$E_{\max \text{ int}} = E_{\text{med}} + f_{\text{corr}} - CF - PR + IM$$

where

E_{med} is the minimum median equivalent field strength (in dB μ V/m) for 650 MHz;

f_{corr} is the frequency correction (in dB)

for the protection of DVB-T in UHF, given by $20 \cdot \log(f/f_{650})$, f in MHz

CF is the combined location correction factor: $CF = q \sqrt{(\sigma_w^2 + \sigma_i^2)}$;

q is the distribution factor;

σ_w is the standard deviation of the lognormal distribution of the wanted signal (in dB);

σ_i is the standard deviation of the lognormal distribution of the interfering signal (in dB);

PR is the appropriate protection ratio;

When the interfering system is of the same type as the wanted one, PR is equal to C/N for the wanted system's RPC. PR and C/N are taken from Addendum 12 to Document 7-E, input from CEPT to RRC-06.

IM is the implementation margin (in dB).

ANNEX 2 – Estonian assignments

This annex lists Estonian assignments with characteristics that are preliminary coordinated with Sweden. Sweden may send comments or restrictions on implementation based on the GE06 Agreement not later than 19.08.2016. After that date assignments in this annex could be implemented without coordination.

The frequency channels marked in yellow for the following Assignments are accepted by the Administration of Sweden as additions to the GE06 Plan. The frequency channels marked in green are the existing ones in the GE06 Plan.

Coordinated assignments to be implemented from 2017

Allotment	Assignment	Lat (North)	Long (East)	Altitude (m a.s.l.)	Ant. Height (m a.g.l.)	ERP (dBW)	Ant (D/ND)	L1	L2	L3	L4	L5	L6
PÄRNU	Pärnu	58.2259	24.3455	10	187	43.0	ND	26	34	36	46	32	24
VALGJÄRVE	Valgjärve	58.0550	26.4040	150	336	43.0	ND	23	25	43	47	40	35
ORISSAARE	Orissaare	58.3327	23.0356	3	180	39.0	ND	38	34	22	46	29	24
KOERU	Koeru	58.5829	26.0324	100	335	39.0	ND	39	27	43	47	44	41
TALLINN	Tallinn Teletorn	59.2816	24.5314	24	289	44.7	ND	28	25	45	37	30	42
KOHTLA	Kohtla-Nõmme	59.2052	27.1148	50	235	34.8	ND	33	34	31	46	29	48

Legend explanation

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ANNEX 3 – Swedish assignments

This annex lists Swedish assignments with characteristics that are preliminary coordinated with Estonia. Estonia may send comments or restrictions on implementation based on the GE06 Agreement not later than 19.08.2016. After that date assignments in this annex could be implemented without coordination.

The frequency channels marked in yellow for the following Assignments are accepted by the Administration of Estonia as additions to the GE06 Plan. The frequency channels marked in green are the existing ones in the GE06 Plan.

Coordinated assignments to be implemented during 2016/2017

Allotment	Assignment	Lat (North)	Long (East)	Altitude (m a.s.l.)	Ant. height (m a.g.l.)	ERP (dBW)	Ant (D/ND)	L1	L2	L3	L4	L5	L6
EMMABODA	Emmaboda Bälshult	56.7731	15.5803	206	313	47	ND	21	28	46	45	47	8
GAEVLE	Gävle Skogmur	60.6306	17.1292	50	313	47	ND	27	24	26	30	46	9
NORRKOEPING	Norrköping/krokek	58.6765	16.4678	113	314	47	ND	36	46	47	32	28	5
STOCKHOLM	Stockholm Nacka	59.2976	18.173	58	289	51.8	D (10-200°: 47 dBW)	23	42	39	32	45	21
UPPSALA	Uppsala/Vedyxa	59.8564	17.7767	35	219	40	ND	40	33	29	30	43	21
VISBY	Visby Follingbo	57.5926	18.373	78	250	47	ND	31	44	41	48	37	22
VAESTERVIK	Västervik Färhult	57.7211	16.4258	90	317	47	ND	26	34	30	43	40	24
OESTHAMMAR	Östhammar Valö	60.2631	18.0722	46	320	47	ND	40	48	26	30	43	6

Legend explanation

GE06
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Coordinated assignments to be implemented after 2017

Allotment	Assignment	Lat (North)	Long (East)	Altitude (m a.s.l)	Ant. height (m a.g.l)	ERP (dBW)	Ant (D/ND)	L1	L2	L3	L4	L5	L6	L7
EMMABODA	Emmaboda Bålshult	56.7731	15.5803	206	313	47	ND	21	28	46	26	36	47	
GAEVLE	Gävle Skogmur	60.6306	17.1292	50	313	47	ND	27	46	26	24	30	43	
NORRKOEPING	Norrköping/Krokek	58.6765	16.4678	113	314	47	ND	28	46	47	34	32	43	36
STOCKHOLM	Stockholm Nacka	59.2976	18.173	58	289	51.8	D (10-200°: 47 dBW)	23	42	39	45	32	21	
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Legend explanation

GE06
NEW

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Minutes of meeting; Estonia and Sweden, June 21st 2016, Warsaw

During the NEDDIF #10 meeting in Warsaw 21-23 June 2016 the Administrations of Sweden and Estonia signed a bilateral coordination agreement relating to DTT in the band 470 – 694 MHz.

The agreement contains a list of Assignments that are accepted by the other Administration (Annex 2 and 3) that can be implemented without prior coordination.

Each Administration will consider and make verifying calculations for the Assignments specified in Annex 2 and 3 respectively. If these calculations shows a need to adjust the tables in the mentioned annexes the Administrations will contact each other no later than 19.08.2016.

If the verification calls for an amendment of the Agreement the Administrations will strive to achieve an amended Agreement no later than 02.09.2016.

Place Warsaw

Date June 21st 2016

For the Estonian Technical Regulatory Authority

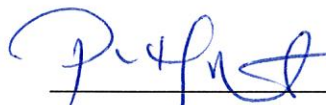


Arvo Rammus
Adviser
Estonian Technical Regulatory Authority

Place Warsaw

Date June 21st 2016

For the Swedish Post and
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Pia Högset
Head of Section for Spectrum Development
Spectrum Department, PTS