




PROJECT:

# EastMed Pipeline Project






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Company	IGI Poseidon
Author	ASPROFOS, ERM
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## Abbreviations

Abbreviation	Description
CSC	Citizen Service Center
GAEC	Greek Atomic Energy Commission
NOEF	National Observatory of Electromagnetic Fields
HTO	Hellenic Telecommunications Organization

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## ANNEX 8 K      ADDITIONAL INFORMATION AND DATA FOR

### ELECTROMAGNETIC FIELDS

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## 8 K.1. INTRODUCTION

The elements supporting the analysis and description of current baseline conditions with regard to electromagnetic fields are summarized in this document. It is noted that the activities, infrastructures and scale of the eastmed project are not of such a scale nor have the characteristics that can affect or be affected by electromagnetic fields.

According to the study performed, the levels of electromagnetic fields in the project study area **are far below the limits established by the Greek legislation.**




## 8 K.2. LEGISLATION - EXPOSURE LIMITS

Legislation on safe public exposure limits to electromagnetic fields includes the following:

- **JMD 53571/3839 (Government Gazette 1105/B/6-9-2000)** "Measures to protect the public from the operation of antennas installed on land" (Articles 2-4),
- **European Council Recommendation L 199 (1999/519 / EC), 30-7-1999**, "On the limitation of public exposure to electromagnetic fields 0 Hz - 300 GHz", on which the aforementioned JMD 53571/3839 was based.
- **Law 3431 (Government Gazette 13/A/03-02-2006)** on "Electronic Communications and other provisions" (§ 9 and 10 as appropriate, Article 31),
- **Circular P/105/014/12-01-2007** of the Greek Atomic Energy Commission on the "Determination of safe exposure limits of the public to electromagnetic radiation in the antenna station environment pursuant to Law 3431/2006 (Government Gazette 13/A/03-02-2006)".
- **Law 4070 (Government Gazette 82/A/10-04-2012)**, on "Electronic Communications, Transport, Public Works and other provisions" (Article 30).
- **Law 4635/2019 (Official Government Gazette A' 167/30.10.2019)** "Invest in Greece and other Provisions"

As **public's safe exposure limits in Greece** (para. 1 of Article 35 of Law 4635/2019), the 70% of EU value is considered, introducing an additional security factor. Especially in the case of antenna installation that sets a safe distance of up to 300 metres from the perimeter of pre-school facilities, schools, retirement homes and hospitals, there is a further reduction in the safe exposure limits to the public (para. 3 of Article 35 of Law 4635 / 2019), as these 60% of EU exposure limit values.

The rules in which these values are applied and the resulting values are detailed in the « Greek Atomic Energy Commission Circular for the establishment of limits for the safe exposure of the public to electromagnetic radiation in the environment of antennas in application of Law 3431/2006

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(Government Gazette 13/A/03-02-2006)» of 12-01-2007 with Reference No P/105/104, adopted following a decision of the Executive Board of the GAEC (183rd meeting, 30.6.2006).

Compliance of the public's safe exposure limits to electromagnetic fields, as defined by the legislation in force, is monitored by the " **National Observatory of Electromagnetic Fields**" (NOEF), of the Greek Atomic Energy Commission (GAEC), which is also its operating body.

**Table K-1 Reference levels of Greek legislation in different frequency ranges as resulting from a reduction factor of 70% and 60% for the intensity of the electric field (E)**




Frequency sub-band	70%	60%	Applications
	E (V/m)	E (V/m)	
10-400MHz	23.4	21.7	FM radio, TETRA communications, VHF broadcasts etc.
600 MHz	28.2	26.1	emitting radiation TV UHF
800 MHz	32.5	30.1	
900 MHz	34.5	31.9	mobile communications GSM-900
1800 MHz	48.8	45.2	mobile communications GSM-1800
2-300GHz	51	47.2	UMTS mobile telephony, microwave links, satellite communications

Data from: <https://paratiritirioemf.eeae.gr/el/radiation/limits>

### 8 K.3. SUMMARY OF RESULTS

Data on the baseline conditions with regards to electromagnetic fields is based on the measurements of the Stations of National Observatory of Electromagnetic Fields (NOEF), which collect data from electromagnetic radiation sources. The National Observatory of Electromagnetic Fields (NOEF), in order to control compliance with the established limits of safe exposure of the public to electromagnetic fields, created a network of five hundred (500) fixed measurement stations, settled in pre-selected locations throughout the country.

Below are the tables with the Measurement stations nearest to Project Study Area, and the results obtained from measurements at the selected stations (see Table K-2 and Table K-3). It is specified that no direct measurements of electromagnetic fields have been done for the project.

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It is noted that Below are the data of the antennas (sources of electromagnetic fields) which were found near various of the project components.

Table K-4 also follows with the antenna elements.

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### 8 K.3.1. Metering Station Data

Table K-2 Nearest electric and magnetic field measuring stations from the examined sections of the project

s/n	Name of Measurement Station	Municipality	Region	Longitude*	Latitude*	Indicative distance from a project component (km)	Project Component	Section of Study Area
1	CSC Ierapetra	Ierapetra	Crete	25.74	35.01	>10	CS2/MS2- CS2/MS2N	Crete
						>10	CR-Inlet Short Onshore and CR-Outlet Short Onshore	
						>10	OSS2/OSS2N	South Cretan Sea
2	Central Building of Sitia Town Hall	Sitia	Crete	26.108	35.205	>10	CS2/MS2- CS2/MS2N	Crete
						>10	CR-Inlet Short Onshore and CR-Outlet Short Onshore	
						>10	OSS3/OSS3N	South Aegean Sea
						>10	OSS2/OSS2N	South Cretan Sea




3	Kindergarten of Hersonissos Port	Hersonissos	Crete	25.391	35.32	>10	OSS3/OSS3N	South Aegean Sea
4	Hersonissos Town Hall	Hersonissos	Crete	25.283	35.328	>10	OSS3/OSS3N	South Aegean Sea
5	Former Town Hall of Nea Alikarnassos	Heraklion	Crete	25.156	35.342	>10	OSS3/OSS3N	South Aegean Sea
6	Depot of the Municipality of Chania	Chania	Crete	24.049	35.526	>10	OSS3/OSS3N	South Aegean Sea
7	Municipal Store of Neapolis Laconia	Monemvasia	Peloponnese	23.06	36.509	9.9	CCS1	Peloponnese
						>10	OSS3/OSS3N	South Aegean Sea
8	Monemvasia Town Hall	Monemvasia	Peloponnese	22.862	36.803	2.8	CCS1	Peloponnese
9	All-day Kindergarten Vlahioti	Evrota	Peloponnese	22.71	36.865	9	CCS1	Peloponnese
10	Fifth Municipal School of Sparta	Sparta	Peloponnese	22.434	37.082	5.3	CCS1	Peloponnese
11	New Megalopolis Town Hall	Megalopoli	Peloponnese	22.136	37.402	2.1	Megalopolis branch	Peloponnese
						9.4	MS4/PRS4	

						5.6	CCS1	
12	Former Town Hall of Lagadia	Gortynia	Peloponnese	22.029	37.681	>10	CCS1	Peloponnese
13	Xenia Building, Ancient Olympia	Ancient Olympia	Western Greece	21.625	37.642	>10	CCS1	Peloponnese
14	Former Town Hall of Karatoula	Pyrgos	Western Greece	21.535	37.736	7.8	CCS1	Peloponnese
						>10	CS3	
15	1st kato Achaia Municipal School	Western Achaia	Western Greece	21.555	38.14	3.5	CCS1	Peloponnese
						7.6	OSS4	Patraikos Gulf
16	Ladopoulos Building at Patra	Patras	Western Greece	21.724	38.228	>10	CCS1	Peloponnese
						>10	OSS4	Patraikos Gulf
17	2nd high school of Naupaktos	Nafpaktia	Western Greece	21.822	38.392	>10	CCS2	West Continental Greece
						>10	OSS4	Patraikos Gulf
18	Town Hall gallery of Iera Polis of Messolonghi	Iera Polis of Messolonghi	Western Greece	21.431	38.369	>10	CCS2	West Continental Greece
						>10	OSS4	Patraikos Gulf
19	Financial Service of the	Agrinio	Western Greece	21.407	38.622	4.1	CCS2	West Continental Greece

	Municipality of Agrinio							
20	Depots – Offices of Municipality of Agrinio	Agrinio	Western Greece	21.408	38.623	4.3	CCS2	West Continental Greece
21	Amfilohia Town Hall	Amfilochia	Western Greece	21.165	38.864	6.8	CCS2	West Continental Greece
22	Building Psaroplias Municipality of Artoon	Artoon	Epirus	20.985	39.162	8.1	CCS2	West Continental Greece
23	Former Louros Town Hall	Preveza	Epirus	20.753	39.164	1.8	CCS2	West Continental Greece
24	Parga Town Hall (Canalaki)	Parga	Epirus	20.599	39.235	2.4	CCS2	West Continental Greece
25	Souli Town Hall	Souli	Epirus	20.513	39.465	>10	CCS2	West Continental Greece
26	Igoumenitsa Town Hall	Igoumenitsa	Epirus	20.265	39.503	>10	CCS2	West Continental Greece

\*Decimal degrees (WGS - 84)




Prepared by: ASPROFOS, 2022. Data from: <https://paratiritioemf.eeae.gr/index.php/el/measurements/map>

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### 8 K.3.2. Measurement results of Measuring Stations




Table K-3 Results of measurements of the nearest Measurement Stations of National Observatory of Electromagnetic Fields (NOEF)

s/n	Name of Measurement Station	Frequency sub-band (MHz)	Stricter Exposure Limit (V/m)	Average value (V/m)	Average maximum value (V/m)	Measurement period
1	CSC Ierapetra	* Broadband area	21.7	0.53	0.63	From 30-10-2015 to 19-09-2021
		**EGSM-900	31.8	0.24	0.27	
		***EGSM-1800	45.1	0.18	0.24	
		****UMTS	47.2	0,26	0.32	
2	Central Building of Sitia Town Hall	Broadband area	21.7	1.55	1.76	From 21-01-2015 to 30-08-2021
		EGSM-900	31.8	1.53	1.78	
		EGSM-1800	45.1	0.37	0.44	
		UMTS	47.2	0.59	0.71	
3	Kindergarten of Hersonissos Port	Broadband area	21.7	1.53	1.67	From 20-01-2015 to 30-08-2021
		EGSM-900	31.8	1.38	1.5	
		EGSM-1800	45.1	0.61	0.74	
		UMTS	47.2	0.48	0.57	
4	Hersonissos Town Hall	Broadband area	21.7	0.39	0.48	From 19/1/2015 to 30-08-2021
		EGSM-900	31.8	0.21	0.23	
		EGSM-1800	45.1	0.13	0.17	
		UMTS	47.2	0.12	0.15	
5	Former Town Hall of Nea Alikarnassos	Broadband area	21.7	0.38	0.91	From 11-06-2015 to 30-08-2021
		EGSM-900	31.8	0.16	0.19	
		EGSM-1800	45.1	0.14	0.16	
		UMTS	47.2	0.13	0.16	

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s/n	Name of Measurement Station	Frequency sub-band (MHz)	Stricter Exposure Limit (V/m)	Average value (V/m)	Average maximum value (V/m)	Measurement period
6	Depot of the Municipality of Chania	Broadband area	21.7	0.46	0.63	From 11-06-2015 to 30-08-2021
		EGSM-900	31.8	0.16	0.18	
		EGSM-1800	45.1	0.09	0.11	
		UMTS	47.2	0.11	0.14	
7	Municipal Store of Neapolis Laconia	Broadband area	21.7	0.22	0.26	From 02-09-2015 to 30-08-2021
		EGSM-900	31.8	0.04	0.05	
		EGSM-1800	45.1	0.07	0.08	
		UMTS	47.2	0.05	0.06	
8	Monemvassia Town Hall	Broadband area	21.7	0.48	0.61	From 02-09-2015 to 30-08-2021
		EGSM-900	31.8	0.25	0.27	
		EGSM-1800	45.1	0.24	0.3	
		UMTS	47.2	0.19	0.24	
9	All-day Kindergarten Vlahioti	Broadband area	21.7	0.55	0.65	From 12-10-2015 to 30-08-2021
		EGSM-900	31.8	0.39	0.42	
		EGSM-1800	45.1	0.26	0.33	
		UMTS	47.2	0.25	0.31	
10	Fifth Municipal School of Sparta	Broadband area	21.7	0.38	0.52	From 12-10-2015 to 30-08-2021
		EGSM-900	31.8	0.15	0.18	
		EGSM-1800	45.1	0.11	0.14	
		UMTS	47.2	0.16	0.19	
11	New Megalopolis Town Hall	Broadband area	21.7	1.56	1.72	From 26-04-2018 to 30-08-2021
		EGSM-900	31.8	1.41	1.47	
		EGSM-1800	45.1	0.52	0.68	
		UMTS	47.2	0.59	0.79	
12	Former Town Hall of Lagadia	Broadband area	21.7	0.28	0.33	From 13-10-2015 to 30-08-2021

s/n	Name of Measurement Station	Frequency sub-band (MHz)	Stricter Exposure Limit (V/m)	Average value (V/m)	Average maximum value (V/m)	Measurement period
		EGSM-900	31.8	0.2	0.22	
		EGSM-1800	45.1	0.1	0.13	
		UMTS	47.2	0.11	0.13	
13	<b>Xenia Building, Ancient Olympia</b>	Broadband area	21.7	2.01	2.32	From 15-09-2015 to 30-08-2021
		EGSM-900	31.8	1.52	1.6	
		EGSM-1800	45.1	0.33	0.58	
		UMTS	47.2	0.93	1.11	
14	<b>Former Town Hall of Karatoula</b>	Broadband area	21.7	0.22	0.32	From 12-06-2015 to 30-08-2021
		EGSM-900	31.8	0.04	0.06	
		EGSM-1800	45.1	0.04	0.05	
		UMTS	47.2	0.03	0.04	
15	<b>1st kato Achaia Municipal School</b>	Broadband area	21.7	0.94	1.18	From 06-10-2015 to 30-08-2021
		EGSM-900	31.8	0.78	0.91	
		EGSM-1800	45.1	0.39	0.51	
		UMTS	47.2	0.36	0.49	
16	<b>Ladopoulos Building at Patra</b>	Broadband area	21.7	0.47	0.63	From 20-07-2015 to 30-08-2021
		EGSM-900	31.8	0.18	0.21	
		EGSM-1800	45.1	0.19	0.24	
		UMTS	47.2	0.18	0.23	
17	<b>2nd high school of Naupaktos</b>	Broadband area	21.7	0.27	0.42	From 12-06-2015 to 30-08-2021
		EGSM-900	31.8	0.07	0.09	
		EGSM-1800	45.1	0.06	0.08	
		UMTS	47.2	0.07	0.09	
18	<b>Town Hall gallery of Iera Polis of Messolonghi</b>	Broadband area	21.7	1.45	1.65	From 26-08-2015 to 30-08-2021
		EGSM-900	31.8	0.79	0.92	
		EGSM-1800	45.1	0.41	0.59	

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s/n	Name of Measurement Station	Frequency sub-band (MHz)	Stricter Exposure Limit (V/m)	Average value (V/m)	Average maximum value (V/m)	Measurement period
		UMTS	47.2	0.51	0.7	
19	<b>Financial Service of the Municipality of Agrinio</b>	Broadband area	21.7	1.13	1.52	From 26-08-2015 to 30-08-2021
		EGSM-900	31.8	0.29	0.34	
		EGSM-1800	45.1	0.22	0.29	
		UMTS	47.2	0.76	1.19	
20	<b>Depots – Offices of Municipality of Agrinio</b>	Broadband area	21.7	1.69	2.17	From 26-08-2015 to 30-08-2021
		EGSM-900	31.8	0.74	0.89	
		EGSM-1800	45.1	1.02	1.36	
		UMTS	47.2	0.97	1.4	
21	<b>Amfilohia Town Hall</b>	Broadband area	21.7	0.44	0.59	From 26-08-2015 to 30-08-2021
		EGSM-900	31.8	0.14	0.17	
		EGSM-1800	45.1	0.1	0.15	
		UMTS	47.2	0.13	0.17	
22	<b>Building Psaroplias Municipality of Artoon</b>	Broadband area	21.7	0.63	0.76	From 11-06-2015 to 30-08-2021
		EGSM-900	31.8	0.43	0.52	
		EGSM-1800	45.1	0.38	0.47	
		UMTS	47.2	0.26	0.36	
23	<b>Former Louros Town Hall</b>	Broadband area	21.7	0.33	0.59	From 12-06-2015 to 30-08-2021
		EGSM-900	31.8	0.08	0.11	
		EGSM-1800	45.1	0.18	0.25	
		UMTS	47.2	0.11	0.15	
24	<b>Parga Town Hall (Canalaki)</b>	Broadband area	21.7	0.69	0.9	From 07-10-2015 to 30-08-2021
		EGSM-900	31.8	0.27	0.33	
		EGSM-1800	45.1	0.26	0.31	
		UMTS	47.2	0.39	0.62	



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s/n	Name of Measurement Station	Frequency sub-band (MHz)	Stricter Exposure Limit (V/m)	Average value (V/m)	Average maximum value (V/m)	Measurement period
25	Souli Town Hall	Broadband area	21.7	0.56	0.9	From 16-09-2015 to 30-08-2021
		EGSM-900	31.8	0.09	0.1	
		EGSM-1800	45.1	0.12	0.17	
		UMTS	47.2	0.13	0.17	
26	Igoumenitsa Town Hall	Broadband area	21.7	1.73	2.13	From 16-09-2015 to 30-08-2021
		EGSM-900	31.8	0.83	1.05	
		EGSM-1800	45.1	0.65	0.89	
		UMTS	47.2	0.95	1.55	

\*The broadband measuring station shall measure in the 100 kHz - 7 GHz frequency band (largest contribution to the frequency sub-area 10-400MHz), as well as in three sub-bands there of:  
 \*\*EGSM 900 (Extended Global System for Mobile Communications) Bandpass 925 MHz – 960 MHz,  
 \*\*\*EGSM (Extended Global System for Mobile Communications)1800 Bandpass 1805 MHz – 1880 MHz,  
 \*\*\*\*UMTS (Universal Mobile Telecommunications System)Bandpass 2110 MHz – 2170 MHz<sup>1</sup>

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### 8 K.3.3. Telephone Antenna Data

Below are the data of the antennas (sources of electromagnetic fields) which were found near various of the project components.

Table K-4 Telephony antennas

s/n	Position code	Municipality	Company	Distance from Project Component (km)	Longitude	Latitude	Project Component	Section of Study Area
1	1406516	Sitia	COSMOTE	1.4	26.127	35.020	CS2/MS2-CS2/MS2N	Crete

<sup>1</sup> <https://paratiritirioemf.eeae.gr/el/emf/tech-description>

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s/n	Position code	Municipality	Company	Distance from Project Component (km)	Longitude	Latitude	Project Component	Section of Study Area
2	1201842	Sitia	WIND	1.5	26.128	35.021	CS2/MS2-CS2/MS2N	Crete
3	1405349	Megalopoli	COSMOTE	10.9	22.047	37.319	MS4/PRS4	Peloponnese
4	1201468	Megalopoli	WIND	11	22.046	37.319	MS4/PRS4	Peloponnese
5	0010172	Western Achaia	HTO	2.8	21.569	37.941	CS3	Peloponnese
6	1405221	Western Achaia	COSMOTE	2.6	21.541	37.952	CS3	Peloponnese
7	0010024	Western Achaia	HTO	3	21.529	37.954	CS3	Peloponnese

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