



MALTA COMMUNICATIONS AUTHORITY

EMF Monitoring Programme

Pre-defined EMF audits

A Report for the First Quarter of 2023

MCA/R/23-4924

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Disclaimer

The presentation of the material in this publication includes the EMF measurements as present at the time of the measurement activity, as well as the extrapolation of the EMF measurements to cover the maximum permitted transmission power of time varying technologies.

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1. Executive Summary

During the last decade, developments in mobile technology have rewritten the way we communicate, do business and socialise. More and more services are converging onto the mobile platform. This unparalleled uptake has instigated the need of even more stringent controls with regards to EMF radiation. The latter served a two-fold purpose. It ensured the operators' compliance with their obligations at law. It also reassured the general public against any potential health effects caused by the transmission equipment.

The Malta Communications Authority (MCA) is the electronic communications services' regulator in Malta. One of its task is to ensure that service providers are operating within predefined limits in terms of EMF radiation. To this effect, the Authority periodically carries out a number of different EMF audits.

The MCA performs three types of audits, namely,

- 1) It audits sites when it receives EMF complaints related to them,
- 2) It audits EMF levels, via drive tests, along carriageways, and
- 3) It annually carries out EMF measurements at pre-demarcated points spread across Malta and Gozo

The report which follows discusses the third type of audit whereby measurements are taken at prescribed points.

2. Background

The EMF radiation levels at specific locations may fluctuate over time. Multiple phenomena may be the cause. As a result, and in order to monitor such discrepancies, if any, the MCA periodically carries out Frequency Selective EMF audits at a number of pre-defined sites. These audits measure the emission levels emanating from every radio frequency signal present on site. The auditing practice is spread over twelve months and is repeated on a yearly basis.

The MCA selects the pre-defined sites based on its practical experience and knowledge at the time. The designated points are deemed to be the ones which best characterises the local EMF scenario. Data pertaining to pre defined EMF audit sites gathered throughout the years, assists the Authority in gaining further insight on the EMF emissions present at these selected sites. This information, together with the data mustered from the other types of audits, helps the MCA to more accurately portray the EMF radiation distribution on the Maltese islands. Past and present readings clearly distinguish which points remain salient or not, in terms of EMF measurements, throughout the years. In view of the latter, the MCA periodically re-evaluates its EMF Audit fixed points; adding new points if deemed appropriate, relocating previously-tested points with more pertinent ones and removing others if they are no longer of relevance. In total, 161 pre-defined audit points were introduced or revised. ***All this led to the MCA launching a revised set of 221 pre-defined audit points in 2023.*** This last list of points introduced areas of public relevance, including, public recreational spaces, playing fields, village squares and the neighbourhood around schools.

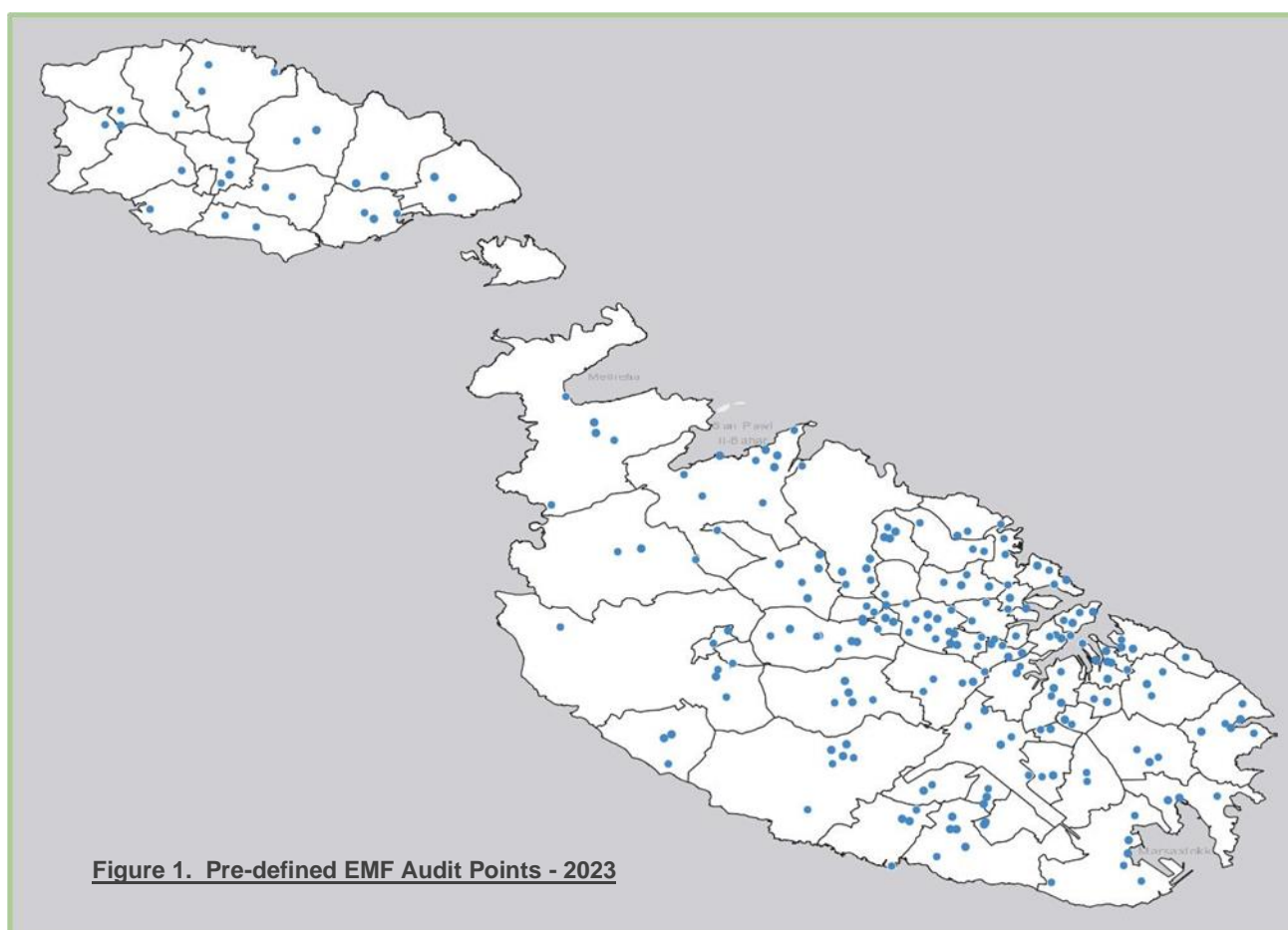
The location details of the pre-defined EMF audit sites, as illustrated in figure 1 below, are enumerated in open data format in Annex 1 of the same report.

3. Methodology

The 221 fixed points, monitored by the MCA, have been recently updated. They represent public spaces and schools, together with areas where the drive tests and user audits have indicated EMF radiation levels that are higher than average but still well within the ICNIRP limits. Previous points which were no longer of relevance have been removed. Measurements are repeated on a yearly basis.

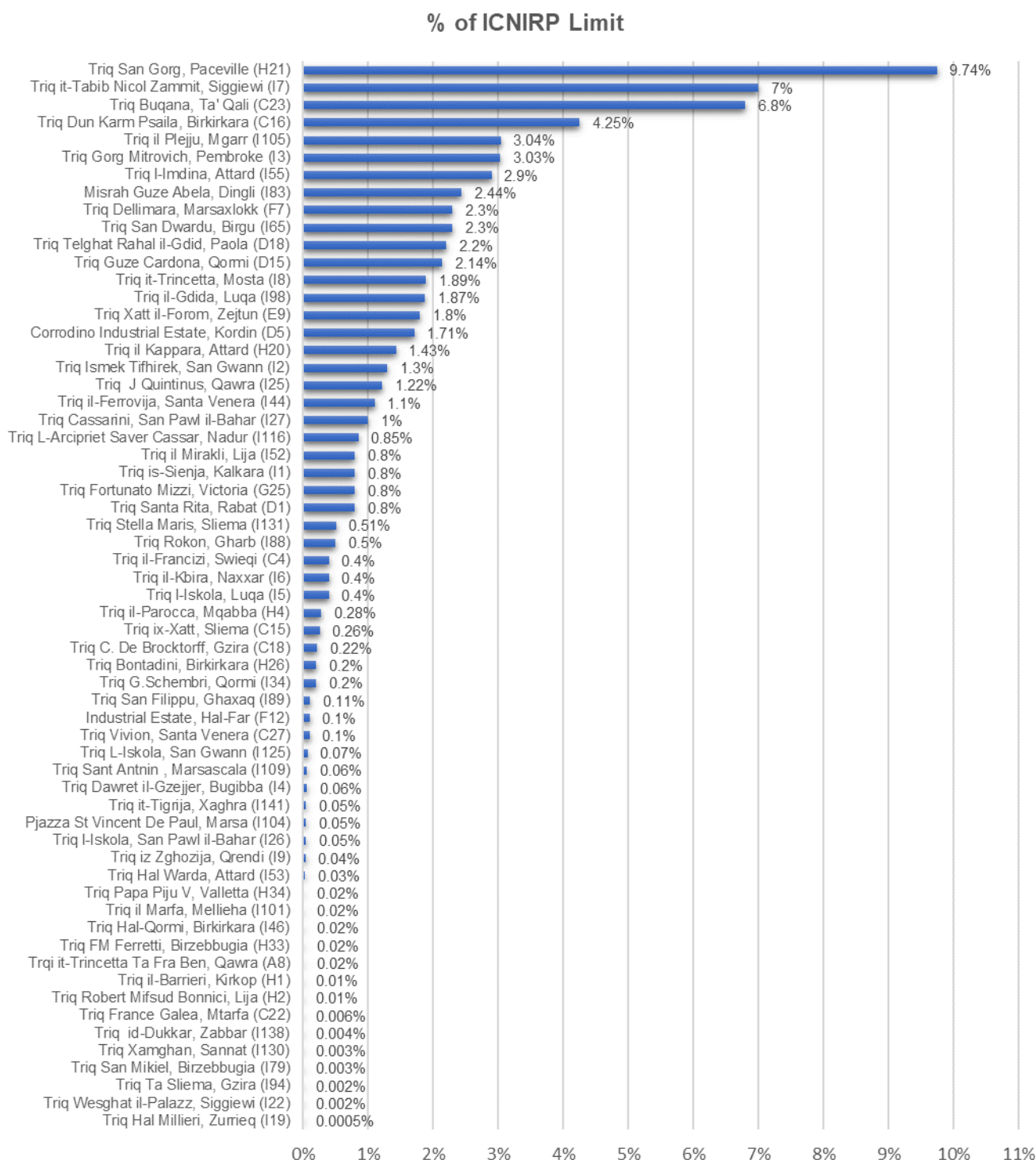
Measurements are taken at street level, and are in accordance with the IEC 62232 standard. The resultant readings are compared with those dictated at Law, which reflect the levels as recommended in the ICNIRP guidelines.

A Narda SRM3006 EMF meter is used for the measurements. The meter scans the frequencies of the radio transmitting technologies present at the selected points and determines the aggregate EMF level (TEQ_s) at that point.



4. Outcome – Q1 2023

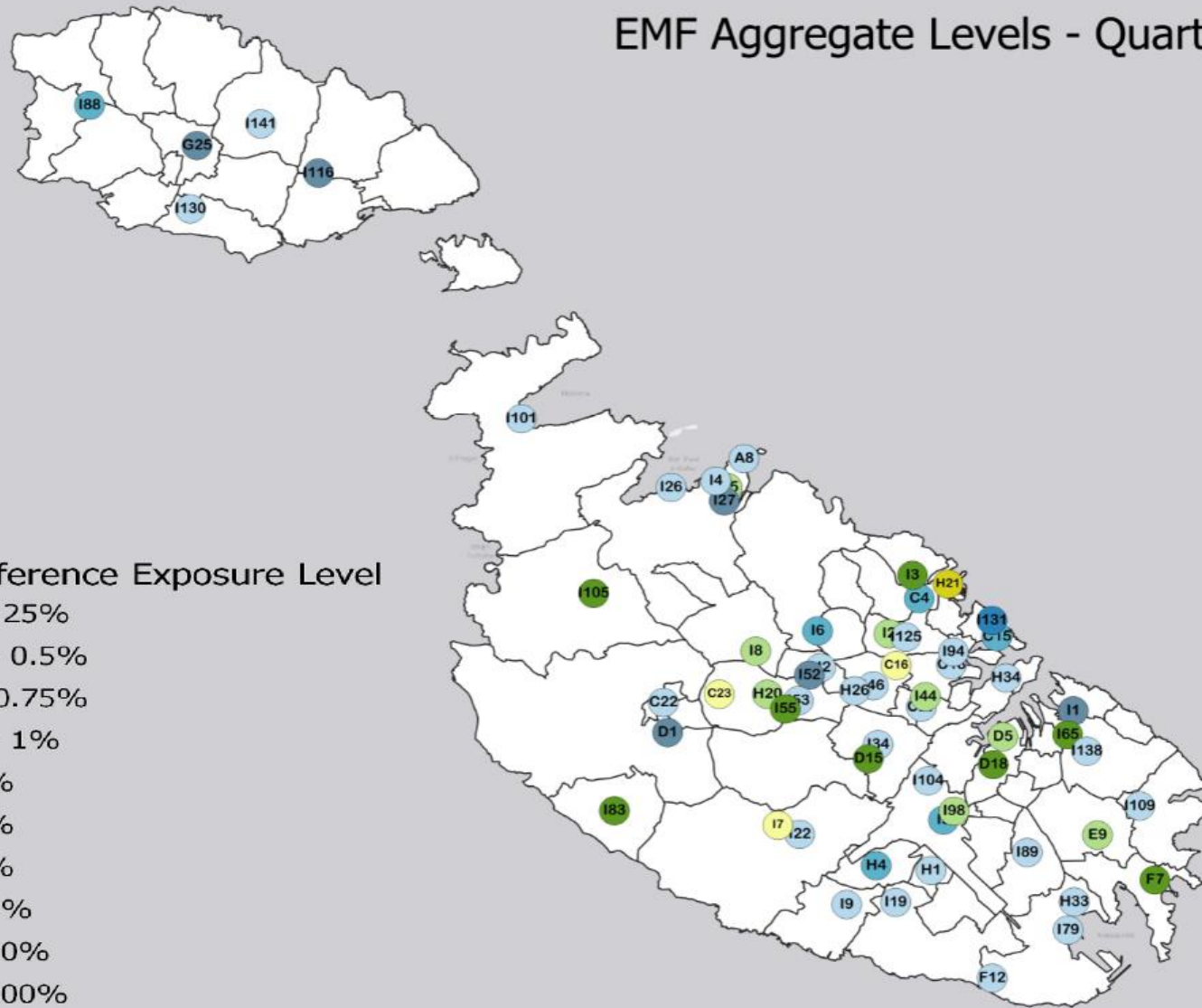
The **61** pre-defined points under investigation for the **first quarter of the year** are outlined below. All measurements resulted in aggregate readings (TEQs) which were well within the ICNIRP limits. The highest reading occurred in Paceville and was 9.74% of the ICNIRP threshold value. The lowest reading, 0.0005%, was in Zurrieq.



EMF Aggregate Levels - Quarter 1 2023

ICNIRP Reference Exposure Level

- A 0% - 0.25%
- A 0.25% - 0.5%
- A 0.5% - 0.75%
- A 0.75% - 1%
- A 1% - 2%
- A 2% - 4%
- A 4% - 8%
- A 8% - 15%
- A 15% - 50%
- A 50% - 100%



5. Annex 1

Audit Site ID	Street	Locality	Lat (N)	Long.(E)
H20	Triq il Kappara	Attard	35.8928	14.43105
I51	Triq Vjal De Paule	Attard	35.894926	14.44952712
I53	Triq Hal Warda	Attard	35.89107018	14.44116433
I54	Triq il-Kbira	Attard	35.89083061	14.44290244
I55	Triq l-Imdina	Attard	35.88871834	14.43692345
I56	Triq is-Sienja	Attard	35.89259569	14.43014747
I58	Triq il-Ponsjetta	Attard	35.89726301	14.44476012
C20	Triq Tumas Xerri	Bahrija	35.89555	14.3487
I49	Triq Guze Bonnici	Balzan	35.89844336	14.45194809
I57	Triq San Frangisk	Balzan	35.89720664	14.45441743
B10	Triq il-Bidnija	Bidnija	35.9263	14.39853333
I65	Triq San Dwardu	Birgu	35.88196837	14.52870586
I66	Triq 8 ta' Dicembru	Birgu	35.88420501	14.52363876
I70	Pjazza tal-Belt Vittoria	Birgu	35.88793955	14.52198609
C16	Triq Dun Karm Psaila	Birkirkara	35.90094962	14.47284987
C17	Triq Dun Karm Psaila	Birkirkara	35.90299993	14.45851745
H11	Triq Isqof Labini	Birkirkara	35.89790408	14.46151967
H26	Triq Bontadini	Birkirkara	35.8938729	14.45938486
I46	Triq Hal-Qormi	Birkirkara	35.895294	14.46541547
I47	Triq Santa Liena	Birkirkara	35.89956043	14.46536913
I48	Triq S Sommier	Birkirkara	35.8981977	14.46840335
F14	Triq Hal-Far	Birzebbugia	35.81478333	14.53316667
H33	Triq FM Ferretti	Birzebbugia	35.83561667	14.53108333
I78	Triq il-Port Hieles	Birzebbugia	35.81975065	14.52756369
I79	Triq San Mikiel	Birzebbugia	35.82779533	14.52914804
I80	Triq il-Bajja s-Sabiha	Birzebbugia	35.82356351	14.52888197
I67	Triq Alessandra	Bormla	35.87906989	14.52246488
I68	Pjazza Santa Margerita	Bormla	35.88457082	14.52233766
I4	Triq Dawret il-Gzejjer	Bugibba	35.95187769	14.41387043
I81	Triq Manuel Bonnici	Burmarrad	35.93504111	14.41296544
E1	Triq Panoramika	Dingli	35.85203446	14.38297726
I82	Triq il-Buskett	Dingli	35.86142567	14.38400549
I83	Misrah Guze Abela	Dingli	35.86023319	14.38160587
I72	Triq il-Kitba	Fgura	35.87174116	14.52231882
I73	Triq Haz-Zabbar	Fgura	35.87269495	14.5181471
H37	Triq San Publiju	Floriana	35.89309634	14.50603949
I63	Triq Sarria	Floriana	35.89251937	14.50408723
I64	Triq Vilhena	Floriana	35.89197013	14.50777655
B7	Triq in-Nahhalija	Ghajn Tuffieha	35.93438333	14.34586667

I85	Triq Bahhara	Ghajnsielem	36.02725041	14.28650874
I86	Triq Dun Guzepp Galea Rapa	Ghajsielem	36.02529938	14.2894751
I87	Triq il-Knisja	Gharb	36.05977289	14.20914128
B12	Triq Fidiel Zarb	Gharghur	35.92724114	14.45264716
I60	Triq il-Wiesgha	Gharghur	35.92372518	14.45331372
I61	Triq Bartilmew	Gharghur	35.92412365	14.45154218
I62	Triq il-Madliena	Gharghur	35.925885	14.45512396
H28	Pjazza Salvatur	Ghasri	36.05862226	14.22663684
I89	Triq San Filippu	Ghaxaq	35.84926334	14.5157792
I90	Triq Tumbarellu	Ghaxaq	35.84646738	14.51593999
H16	Triq San Luqa	G'Mangia	35.8926769	14.49334607
I91	Triq iz-Zebbuga	Gudja	35.84795725	14.50163295
I92	Triq il-Hofra	Gudja	35.84840268	14.5051524
C18	Triq C. De Brocktorff	Gzira	35.90125	14.49081667
I93	Triq ix-Xatt ta; Ta' xbiex	Gzira	35.90146589	14.49655832
I94	Triq Ta Sliema	Gzira	35.90480568	14.49143629
I96	Triq Reggie Miller	Gzira	35.90894034	14.49080297
I15	Triq Dun Guzepp Caruana	Hal Safi	35.83280142	14.48325626
I16	Misrah il-Knisja	Hal Safi	35.83354328	14.48370645
F12	Industrial Estate	Hal-Far	35.81436667	14.5046
I37	Triq il-Kbira San Guzepp	Hamrun	35.88987182	14.47464174
I38	Triq Oscar Zammit	Hamrun	35.89167633	14.4865512
I39	Triq is-Sorijiet iz-Zghar tal-Fqar	Hamrun	35.88609972	14.49093673
I40	Triq Wenzu Mallia	Hamrun	35.88967151	14.48907486
I41	Triq Mile End	Hamrun	35.88727888	14.49529971
I45	Triq Adelaide Cini	Hamrun	35.89015994	14.48544903
I28	Triq F.Farrugia	Haz Zebbug	35.87149996	14.4357888
I29	Triq Santa Marija	Haz Zebbug	35.87839015	14.4390452
I30	Triq Adeodata Gatt	Haz Zebbug	35.8747244	14.44022859
I31	Triq Cappara	Haz Zebbug	35.87240233	14.44794926
I32	Triq Sciortino	Haz Zebbug	35.87167803	14.44143171
C3	Triq il-Qasab	Ibragg	35.9202907	14.47967752
H27	Triq il-Wied	Iklin	35.90598914	14.45180943
I50	Triq Dun Karm	Iklin	35.90245803	14.45216881
C30	Triq Portu Salvu	Isla	35.89031667	14.51448333
I69	Triq il-Vittmi tal Gwerra	Isla	35.88512056	14.51868669
C31	Triq Rinella	Kalkara	35.8915	14.52685
I1	Triq is-Sienja	Kalkara	35.88863767	14.53048591
I71	Triq Malta Rebbieha	Kalkara	35.88916442	14.5268164
I97	Triq is-Sarg	Kercem	36.04069951	14.2284814
H1	Triq il-Barrieri	Kirkop	35.84415	14.48453333
I12	Triq Benedittu Farrugia	Kirkop	35.84238785	14.48637704
I14	Triq Hal Safi	Kirkop	35.83932356	14.48310924
I13	Triq San Benedittu Farrugia	Kirkopp	35.84155815	14.48408958

D5	Corrodino Industrial Estate	Kordin	35.88134408	14.50764752
H2	Triq Robert Mifsud Bonnici	Lija	35.90026667	14.4483
H24	Triq il-Forn	Lija	35.90215566	14.4459569
I52	Triq il-Mirakli	Lija	35.89814896	14.44466992
I100	MIA Entrance	Luqa	35.84842401	14.49740495
I5	Triq l-Iskola	Luqa	35.8581368	14.48850319
I98	Triq il-Gdida	Luqa	35.86062633	14.49191004
I99	Triq il-Masgar	Luqa-Hal Farrug	35.86406553	14.47820564
I150	Triq ic-Cink	Madliena	35.92868615	14.46285564
H18	Triq is-Salib	Marsa	35.88302686	14.49467189
I104	Pjazza St Vincent De Paul	Marsa	35.8690296	14.48342776
I152	Triq Simpson	Marsa	35.88094246	14.49357365
G2	Triq Santa Maria	Marsalforn	36.07191667	14.25793333
D22	Triq Ir-Rand	Marsascala	35.8711403	14.5652904
I106	Triq l-Arzell	Marsascala	35.86176381	14.5688938
I107	Triq Habberxa	Marsascala	35.86482047	14.55980893
I109	Triq Sant Antnin	Marsascala	35.86230587	14.55221397
I157	Triq il Bajja	Marsascala	35.86625234	14.56460716
I149	Triq ix-Xatt	Marsaskala	35.86349157	14.5616228
F7	Triq Dellimara	Marsaxlokk	35.84178542	14.55725541
I113	Triq Lepanto	Marsaxlokk	35.84047939	14.54162641
I114	Triq Xatt is-Sajjieda	Marsaxlokk	35.84125019	14.54523841
A7	Triq il-Fortizza	Mellieha	35.95493333	14.3658
I101	Triq il-Marfa	Mellieha	35.9688209	14.35049166
I103	Triq Gnien Ingraw	Mellieha	35.96060386	14.35943872
I151	Triq Edward Camilleri	Mellieha	35.95726495	14.35997647
C8	Triq Tal-Hzejjen	Mgarr	35.91699851	14.39168737
I105	Triq il-Plejju	Mgarr	35.92050036	14.37436246
I153	Triq il-Kbira	Mgarr	35.91949095	14.36691728
I155	Triq Sant'Antnin	Mgarr Gozo	36.02701873	14.29684557
I108	Triq il-Kostituzjoni	Mosta	35.90972129	14.4253878
I110	Triq l-Assembleja Nazjonali	Mosta	35.91558801	14.41825552
I156	Triq Mons Mikiel Azzopardi	Mosta	35.91417168	14.4306924
I158	Triq il-Fenici	Mosta	35.91859417	14.43107414
I8	Triq it-Trincetta	Mosta	35.90470477	14.42719958
H4	Triq il-Parrocca	Mqabba	35.8454	14.46673333
I11	Triq 9 ta'April 1942	Mqabba	35.84501947	14.4688698
I159	Triq Madonna tal-Gilju	Mqabba	35.84352695	14.46405017
I111	Triq Brighella	Mriehel	35.891794	14.46784851
H22	University Site	Msida	35.90325	14.4839
C22	Triq France Galea	Mtarfa	35.89035	14.39728333
I112	Triq Maqdes Ruman	Mtarfa	35.89442374	14.40197377
I115	Triq Pietru Cellini	Nadur	36.03888496	14.29297316
I116	Triq L-Arcipriet Saver Cassar	Nadur	36.03659623	14.28384847

C10	Triq il-Germanja	Naxxar	35.90906823	14.43933191
I119	Triq Sqaq Cejlu	Naxxar	35.91313896	14.43815888
I120	Triq l-Oratorju	Naxxar	35.91418899	14.44586958
I121	Triq San Pawl	Naxxar	35.91722017	14.44700405
I6	Triq il-Kbira	Naxxar	35.91043632	14.44726369
H21	Triq san Gorg	Paceville	35.92365	14.48955
D18	Triq Telghat Rahal il-Gdid	Paola	35.87359446	14.50458676
I74	Triq Guze Damato	Paola	35.87146514	14.50771556
I75	Triq Kordin	Paola	35.87615097	14.50536212
I102	Triq Jum Pembroke	Pembroke	35.92454544	14.47475416
I3	Triq Gorg Mitrovich	Pembroke	35.92600486	14.47800105
I117	Triq ta' Grunju	Qala	36.038621	14.30873462
I118	Triq il-Barbagann	Qala	36.03204333	14.31441669
A8	Triq it-Trincetta Ta Fra Ben	Qawra	35.95811172	14.42298445
I25	Triq J Quintinus	Qawra	35.95009692	14.41759137
D15	Triq Guze Cardona	Qormi	35.87504168	14.4639628
I33	Triq Bartolomew	Qormi	35.87776061	14.47635827
I34	Triq G.Schembri	Qormi	35.87898938	14.46713956
I35	Triq l-Iskultur	Qormi	35.8813303	14.48345423
I36	Triq Vjal De La Cruz	Qormi	35.87817457	14.47973499
F3	Triq Dwardu Borg	Qrendi	35.83738301	14.46173494
I10	Triq Dun Raymond Ellul	Qrendi	35.83383956	14.45957257
I9	Triq iz Zghozija	Qrendi	35.83456642	14.45722794
D1	Triq Santa Rita	Rabat	35.88201667	14.39873333
D11	Triq Ganado (tal-Virtu)	Rabat	35.87329003	14.40141882
I122	Triq Mario Galea Testaferrata	Rabat	35.88400617	14.40339488
I123	Triq Kanonku G Gatt Said	Rabat	35.87982871	14.39809126
I124	Triq il-Kappella tal-Lunzjata	Salili	35.94678252	14.42546972
H36	Triq l-Stefanotis	San Gwann	35.91216667	14.47773333
I125	Triq l-Iskola	San Gwann	35.90884535	14.47597955
I126	Triq ic-Ciefa	San Gwann	35.90844812	14.48478133
I2	Triq Ismek Tifhirek	San Gwann	35.90974251	14.47043331
I127	Triq San Lawrenz	San Lawrenz	36.05525087	14.20418211
I128	Triq il-Kahli	San Pawl il-Bahar	35.94849729	14.41074061
I26	Triq l-Iskola	San Pawl il-Bahar	35.9500395	14.39930895
I27	Triq Cassarini	San Pawl il-Bahar	35.94637903	14.41665898
I129	Triq Skerla	Sannat	36.02274311	14.25215277
I130	Triq Xamghan	Sannat	36.02638792	14.24226999
H6	Triq Santa Katerina Vitale	Santa Lucia	35.86293333	14.50118333
I134	Triq Inez Soler	Santa Lucia	35.86316115	14.50433162
C27	Triq Vivion	Santa Venera	35.88946667	14.48115
I42	Triq Lindjana	Santa Venera	35.89038462	14.47248451
I43	Triq Fleur-de-Lys Junction	Santa Venera	35.89346389	14.47374174
I44	Triq il-Ferrovija	Santa Venera	35.89233397	14.4824407

F1	Triq Ghar lapsi	Siggiewi	35.83748955	14.42719603
I21	Triq l-Imwiegel	Siggiewi	35.85207001	14.43510162
I22	Triq Wesghat il-Palazz	Siggiewi	35.85398937	14.44181938
I23	Triq Mattia Preti	Siggiewi	35.85828076	14.43955626
I24	Triq San Nikola	Siggiewi	35.85454709	14.4384443
I7	Triq it-Tabib Nikola Zammit	Siggiewi	35.85648367	14.43472407
C15	Triq ix-Xatt	Sliema	35.9091007	14.50553302
I131	Triq Stella Maris	Sliema	35.91359645	14.50390023
I132	Triq Adrian Dingli	Sliema	35.91506415	14.50015033
I133	Triq Xatt ta' Qui-Si-Sana	Sliema	35.91052335	14.50937835
B15	Triq Profs W.Ganado	St'Julians	35.92821379	14.48854795
C5	Triq Gorg Borg Oliver	St'Julians	35.91861667	14.48996667
H12	Triq is Swatar	Swatar	35.89751223	14.47937649
I95	Triq Swieqi	Swieqi	35.91962098	14.48321219
I59	Triq San Gakbu	Ta Qali	35.89493217	14.4216027
C23	Triq Buqana	Ta' Qali	35.89273744	14.41541435
I76	Triq Brittanika	Tarxien	35.86459523	14.51106171
I77	Triq Joanna Garden	Tarxien	35.8661035	14.50885661
H34	Triq Papa Piju V	Valletta	35.89766664	14.50853602
I135	Triq il-Merkanti	Valletta	35.90037834	14.51787016
I136	Triq il-Fran	Valletta	35.90015406	14.51359978
I139	Triq San Zakkarija	Valletta	35.89684531	14.5113269
G25	Triq Fortunato Mizzi	Victoria	36.04398333	14.24426667
I137	Triq Wistin Camilleri	Victoria	36.03935264	14.2436297
I84	Triq 23 April	Victoria	36.03665069	14.24099485
I160	Triq Ras il-Wardija	Wardija	35.93721493	14.39375688
I141	Triq it-Tigrija	Xaghra	36.05011823	14.26498837
I142	Triq Ghonqa	Xaghra	36.05353675	14.27124472
I143	Triq tal-Fjuri	Xemxija	35.94402604	14.38795432
G17	Triq il-Labour	Xewkija	36.03533333	14.25508333
G19	Triq L-Imgar	Xewkija	36.03231797	14.26355117
I140	Triq San Gakbu	Xghajra	35.88594001	14.54725011
I144	Triq il-Qsajjem	Xlendi	36.02836683	14.21843502
I138	Triq id-Dukkar	Zabbar	35.8774445	14.53493755
I145	Triq Alessio Erardi	Zabbar	35.88131162	14.53995458
I154	Triq Leli Tabone	Zabbar	35.87368104	14.53642586
G1	Triq Skapuccina	Zebbug	36.07430834	14.2370228
I146	Triq ic-Cnus	Zebbug	36.06588549	14.23488802
E9	Triq Xatt il-Forom	Zejtun	35.85416667	14.53856667
I147	Triq Luqa Briffa	Zejtun	35.85261909	14.53576236
I148	Triq Sant'Anglu	Zejtun	35.85656027	14.53177393
F10	Triq il-Mithna tal-Qaret	Zurrieq	35.82257827	14.46820652
F8	Wied iz-Zurrieq	Zurrieq	35.81954092	14.45386555
I17	Triq Bubaqra	Zurrieq	35.82566222	14.47731015

118	Triq Santa Katerina	Zurrieq	35.83127207	14.47447918
119	Triq Luret Cutajar	Zurrieq	35.83526031	14.47312559
120	Triq Carmelo Caruana	Zurrieq	35.83131205	14.47246032



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