



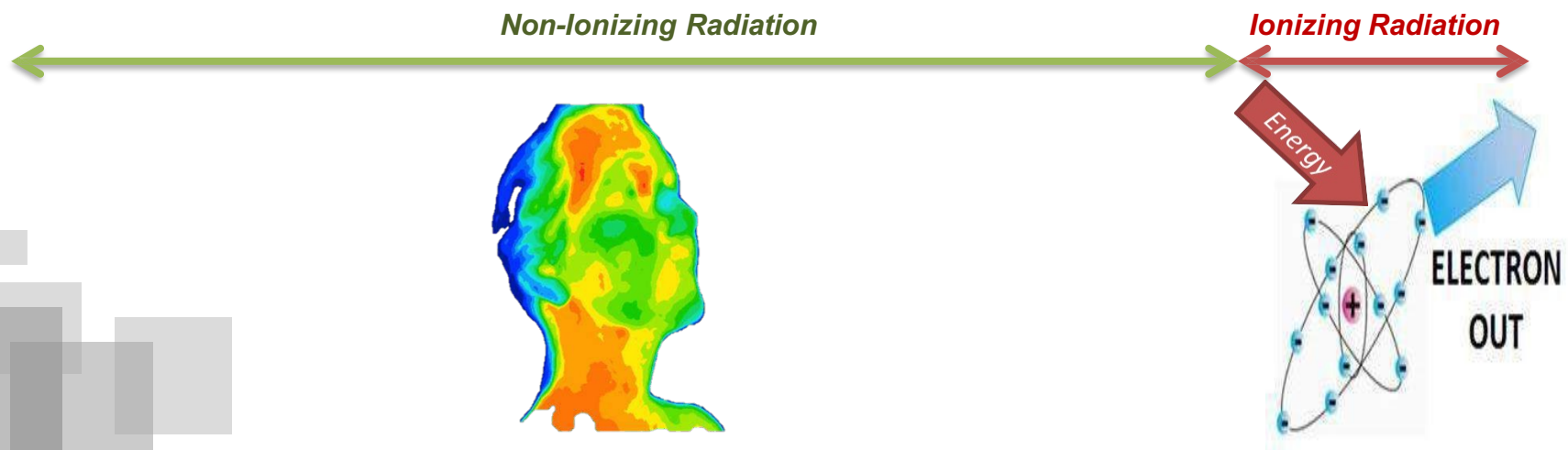
# **Telecommunications Regulatory Commission - Jordan**

## **ITU-T SG5RG-ARB & Regional Workshop On Human Exposure To Electromagnetic Fields**

### **Measurements tools and inspection visit report review on EMF measurements**

**Atoum, Hisham  
Radio Spectrum Monitoring Director  
Telecommunications Regulatory Commission -Jordan**

# EM Spectrum

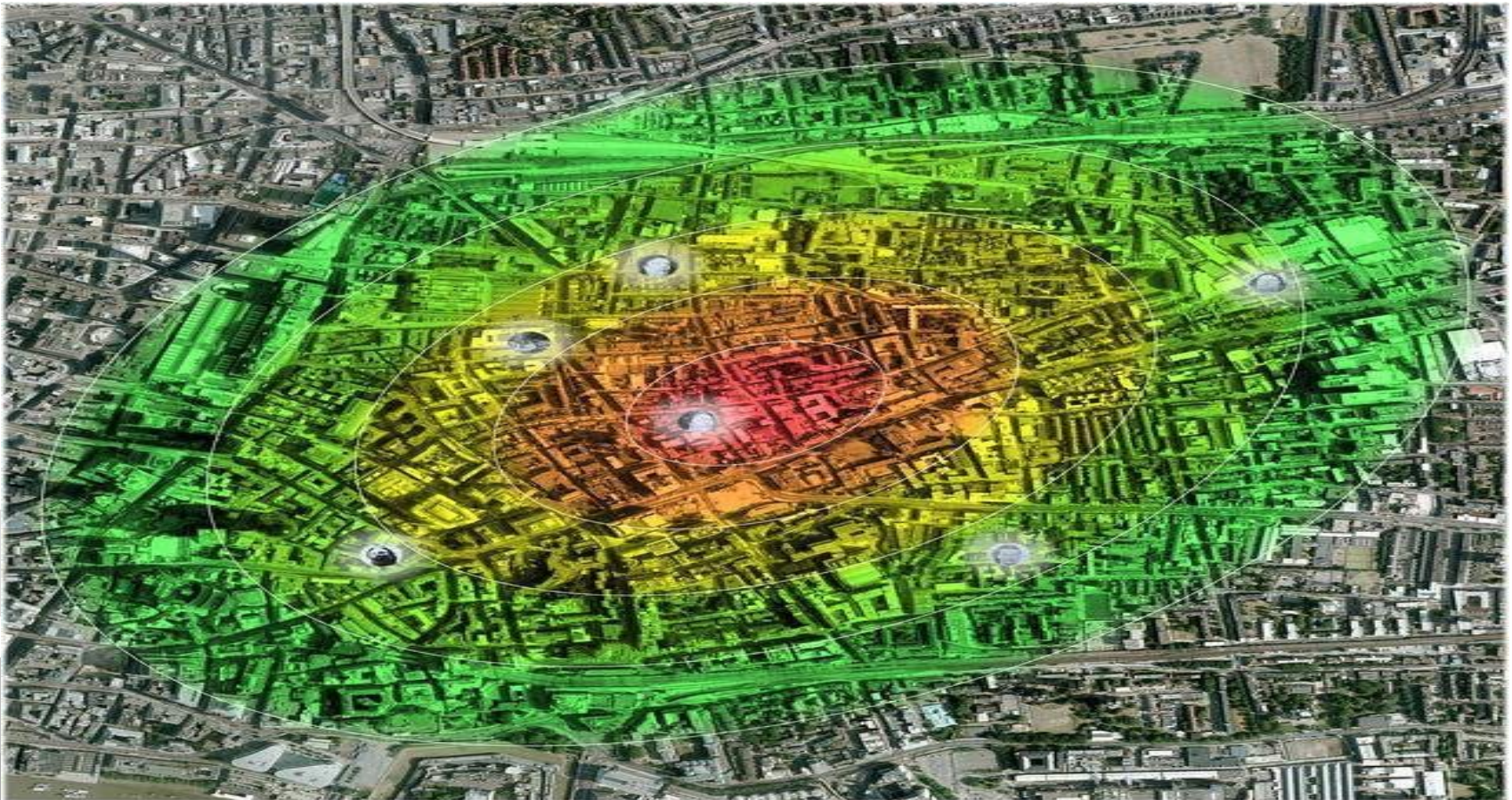


## *TRC Procedures / History*

- 2005 : TRC adopted instructions for determining the effects of exposure to electromagnetic fields.
- Reference document: International Commission on Non-Ionizing Radiation Protection (ICNIRP) Under the title:  
(GUIDELINES FOR LIMITING EXPOSURE TO TIME-VARYING ELECTRIC, MAGNETIC AND ELECTROMAGNETIC FIELDS)

## TRC Procedures

- Prerequisite for granting approval to construct any new radio site is conducting comprehensive simulation of transmitter parameters.

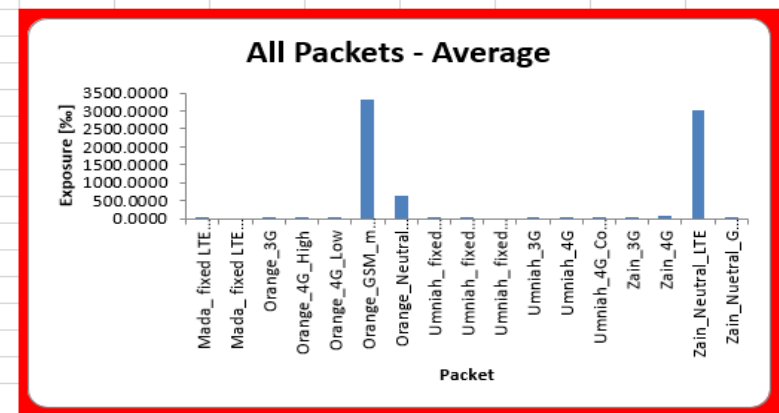




# TRC Procedures

- Site visit would be scheduled to verify the compliance of approval certificate parameters including precise location.
- Ensuring that EMF exposure levels are within acceptable limits including the levels received from existing radio stations.

All Packets - Average		
Packet	Total Field (RMS) [V/m]	Total ER * 1000 [%o]
Mada_fixed LTE (15 MHz)	0.1034	0.0029
Mada_fixed LTE (5 MHz)	0.0626	0.0011
Orange_3G	3.1774	2.7132
Orange_4G_High	4.0797	4.4729
Orange_4G_Low	5.7574	9.4573
<b>Orange_GSM_mod</b>	<b>76.7818</b>	<b>3314.9049</b>
Orange_Neutral_LTE	33.4688	630.0420
Umniah_fixed LTE (25 MHz)	2.4460	1.6078
Umniah_fixed LTE (25 MHz)_	0.1696	0.0077
Umniah_fixed LTE (5 MHz)	0.0614	0.0010
Umniah_3G	4.8674	6.3671
Umniah_4G	6.6255	12.6437
Umniah_4G_Covid	4.4102	5.6483
Zain_3G	1.2278	0.4052
Zain_4G	16.5099	77.0410
<b>Zain_Neutral_LTE</b>	<b>73.9891</b>	<b>3030.7264</b>
Zain_Nueutral_GSM_mod	2.0747	2.4013
<b>Sum</b>	<b>113.6720</b>	<b>7098.4438</b>
Limit Line:	ICNIRP	
Antenna:	Tri-axis probe - R&S SerNo 101739 RSEMF26-5019-101739	



Licensing Request  
Contains 3  
Candidates

RF Simulation  
(Licensing Department)

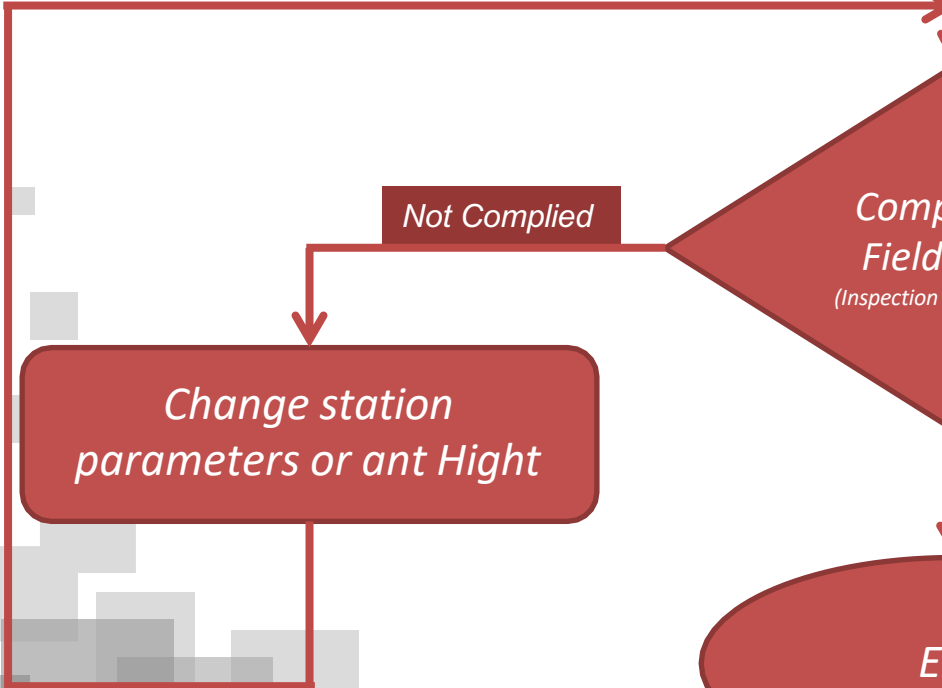
Compliance  
Field Test ?  
(Inspection Department )

Not Complied

Change station  
parameters or ant Hight

Complied

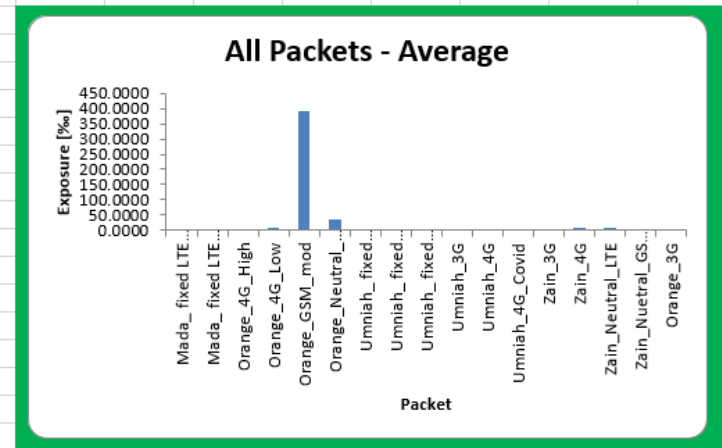
End



# TRC Procedures

***After taking the necessary actions.***

All Packets - Average		
Packet	Total Field (RMS) [V/m]	Total ER * 1000 [‰]
Mada_fixed LTE (15 MHz)	0.0921	0.0023
Mada_fixed LTE (5 MHz)	0.0542	0.0008
Orange_4G_High	1.5421	0.6391
Orange_4G_Low	6.1348	10.7379
Orange_GSM_mod	26.3130	389.5171
<b>Orange_Neutral_LTE</b>	<b>8.0367</b>	<b>36.3281</b>
Umniah_fixed LTE (25 MHz)	0.6458	0.1121
Umniah_fixed LTE (25 MHz)	0.1407	0.0053
Umniah_fixed LTE (5 MHz)	0.0517	0.0007
Umniah_3G	1.9744	1.0476
Umniah_4G	3.0196	2.6262
Umniah_4G_Covid	1.8257	0.9680
Zain_3G	0.4079	0.0447
Zain_4G	6.2294	10.9679
<b>Zain_Neutral_LTE</b>	<b>4.2560</b>	<b>10.0280</b>
Zain_Nuetral_GSM_mod	0.3791	0.0801
Orange_3G	1.5081	0.6112
<b>Sum</b>	<b>29.5513</b>	<b>463.7171</b>
Limit Line:	ICNIRP	
Antenna:	Tri-axis probe - R&S SerNo 101739 RSEMF26-5019-101739	



## TRC Procedures

The public fear increased significantly of being exposed to electromagnetic fields.

Reason : Most of the IMT new sites are constructed in residential areas



*Example: Site in residential area*



*TRC dedicated a special section to receive public complains in this regards*















أهلاً بك  
N/A - 28/11/2019

- لوحة المعلومات
- قاعدة المعرفة
- المهام
- التقويم
- الوثائق
- التقارير
- الإعدادات

لوحة المعلومات



المعنى	موافقتي	موافقتي
لا يوجد سجلات	3338	5
لا يوجد سجلات	5	7
لا يوجد سجلات	7	45

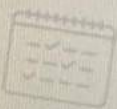
الملخص

- الطلبات المفتوحة
- حالات اليوم
- المفترحة اليوم
- المغفلة اليوم
- المقرر اليوم
- المقرر الأسبوع المقبل

اجهزة الحاسوب

لا يوجد سجلات

تقويم المهام



المهام  
لا يوجد سجلات

November 2019						
S	F	T	W	T	M	S
2	1					44
9	8	7	6	5	4	45
16	15	14	13	12	11	46
23	22	21	20	19	18	47
30	29	28	27	26	25	48
						49



إدارة العقود والعروض

Activate Windows  
Go to PC settings to activate Windows













2

الهيئة العامة للغذاء والدواء  
Jordanian Food and Drug Administration













































ROHDE & SCHWARZ

ROHDE & SCHWARZ

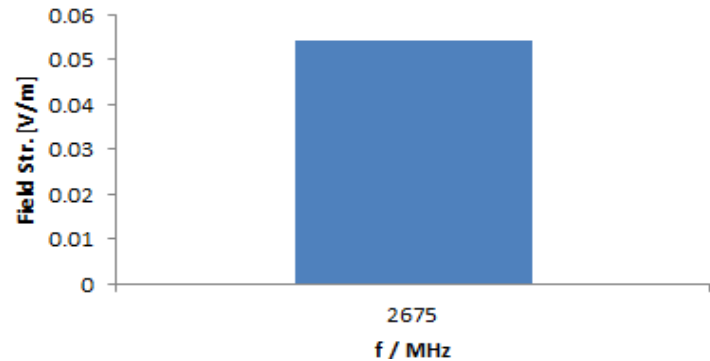




# Field Test Report

	A	C	D	E	F	G	I	M	N	O
1										
2	Packet: Orange_4G_High									
3										
4	Average Values									
5		Frequency	Field Strength E	Field Level	Limit L	Exposure Ratio ER	ER * 1000	Power Density		
6		[MHz]	[V/m]	[dBµV/m]	[V/m]	$E^2 / L^2$	[‰]	[µW/cm²]		
7		2675.0000	0.0543	94.6993	61.0000	0.0000	0.0008	0.0008		
8										
9		Total Exposure Ratios				0.0000	0.0008	0.0008		
10		Total Field Strength (RMS)		0.0543 V/m						
11		Max. Single Value:		0.0543 V/m						
12										
13		Polarisation:	Tri-axis probe							
14		Antenna:	Tri-axis probe							
15		Cable:	0m Cable							
16										
17		Trace Mode / Detector:	Max Hold / RMS							
18		Res BW / Video BW:	300 kHz / Auto /							
19		Ref Level:	97 dBµV							
20		Dwell time:	300 ms							
21		Channel Power:	BW = 20 MHz							
22		Extrapolation factor:	0 dB							
23		Threshold:	70 dB Relative to max. level							
24		Limit Line:	ICNIRP							

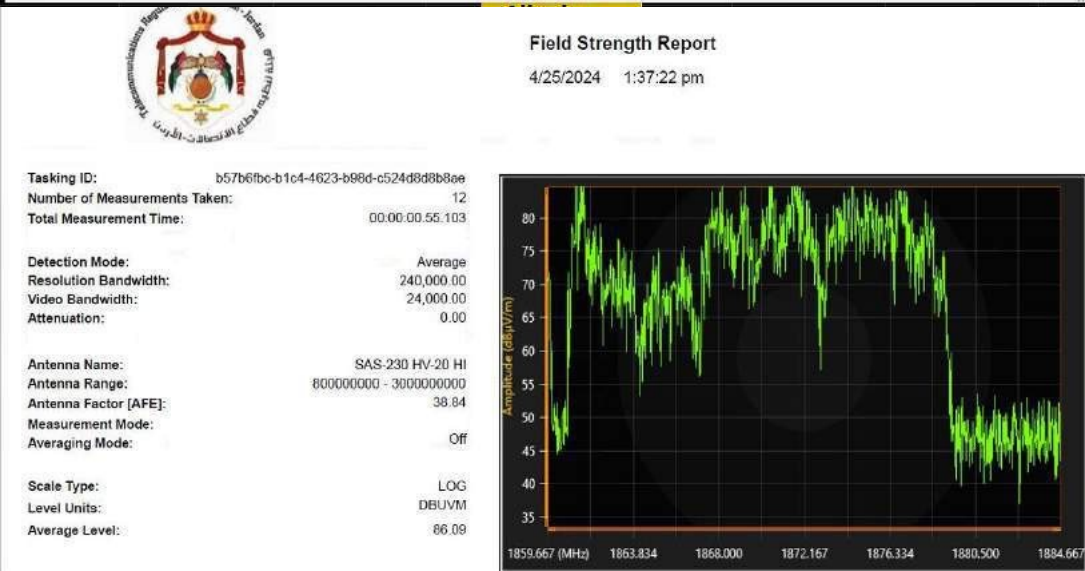
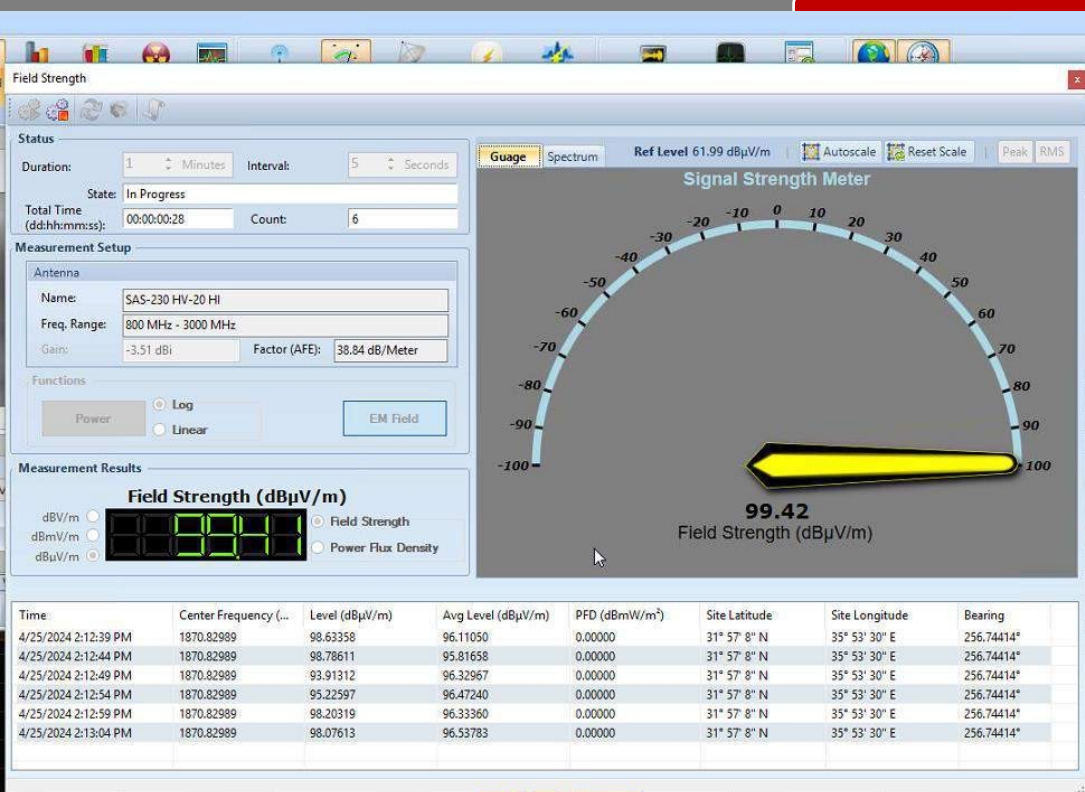
**Average Values:  
Orange\_4G\_High**















**Thank You**