IFA2

IFA2 Community Liaison Group

18th May 2021
5:30pm

Microsoft Teams Meeting

Agenda

1. Introductions
2. Apologies
3. Project status
4. Test results
5. Planning Conditions
6. Open Space
7. CLG membership feedback and questions
8. AOB
9. CLG closing remarks

2. Apologies

Cllr Trevor Cartwright
Cllr Steve Dugan
Cllr Pal Hayre
Cllr Kay Mandry

3. Project Status

Trial Operations

- Trial Operations since 22 January 2021
- Outage

Full Operations

- Move to Full Commercial Operations when Trial Operations complete

4. Testing Update

- Converter Station
- Noise
- RFI
- Airfield

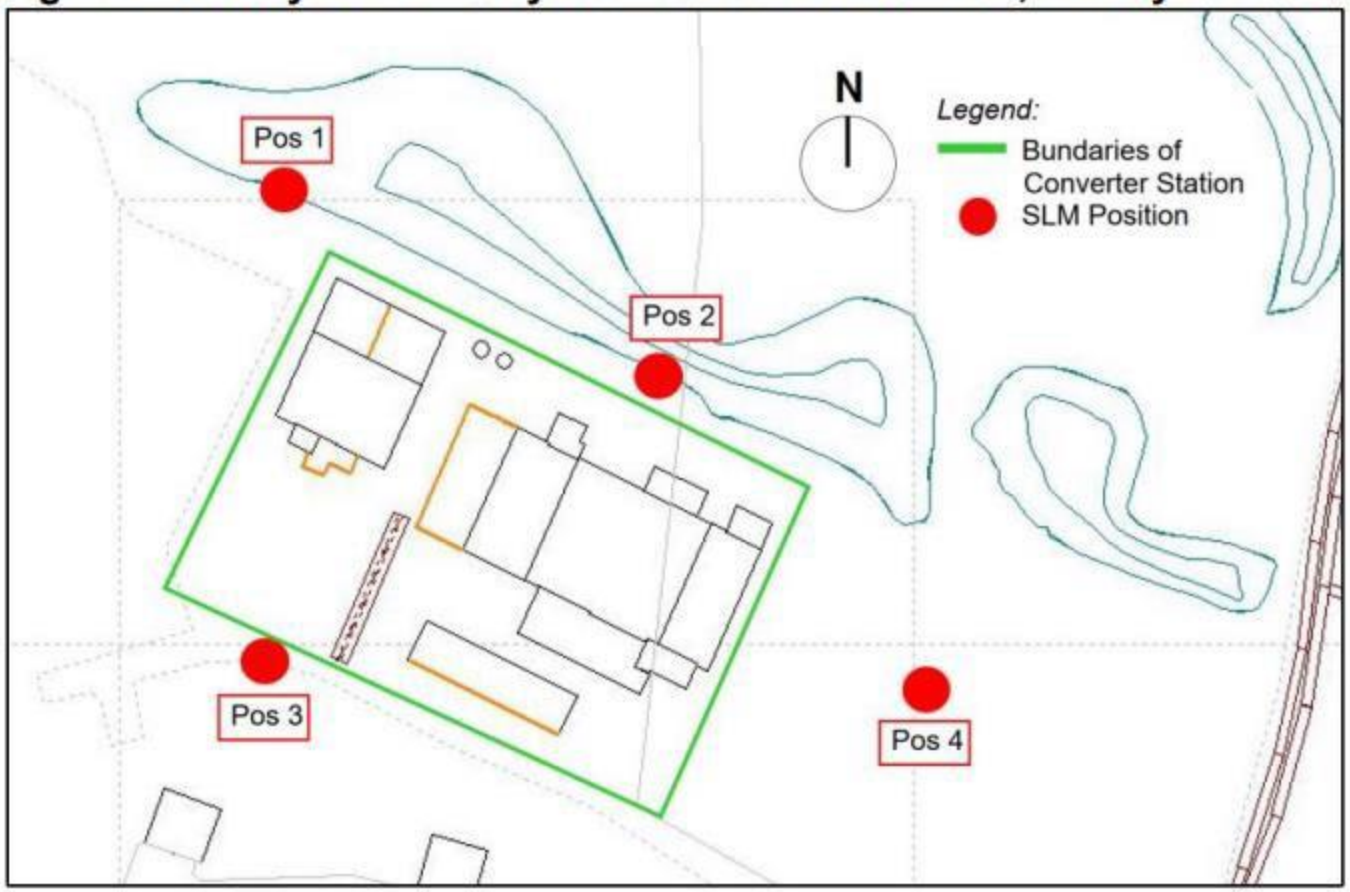
Test results at Daedalus Converter Station

- Testing and commissioning of the converter station took place between October 2020 and January 2021
- We are pleased to say that these tests confirmed that the IFA2 infrastructure has met or exceeded our expectations on Noise, Electromagnetic Fields (EMF) and Radio Frequency interference (RFI)
- Noise measurements conducted by Bureau Veritas
- RFI measurements conducted by LSAEM and reviewed by TUV-SUD. The review is still in progress.
- EMF measurments conducted by National Grid specialists with Airport representatives and reviewed by TUV-SUD

Noise results

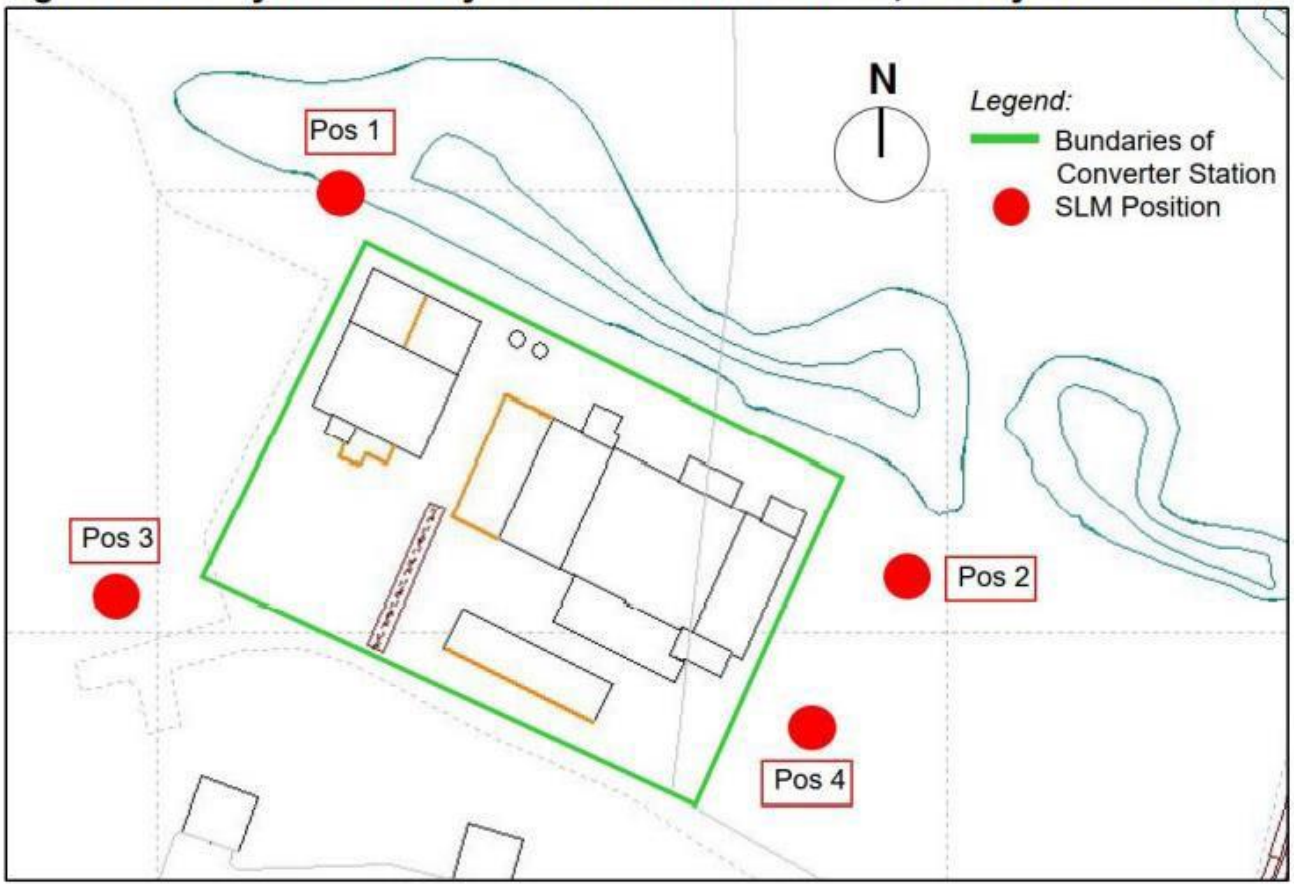
- We set up a number of noise monitoring stations throughout 2018 and 2019 to gather data including night time.
- Measurements were then carried out in October and November 2020 as we commissioned and brought the station to full power.
- The results show the station is even quieter than we expected. Noise levels are around 10dB lower than background on a quiet night.

Figure 2.1 – Day-time Survey Measurement Locations, Survey of 5th November



Converter Station energised but no power flow

Figure 2.3 – Day-time Survey Measurement Locations, Survey of 23rd November



Converter Station energised and at full 1000MW power flow

Table 3.2 – BS4142 assessment of the fixed mechanical plant noise – Night-time (Gosport Road)

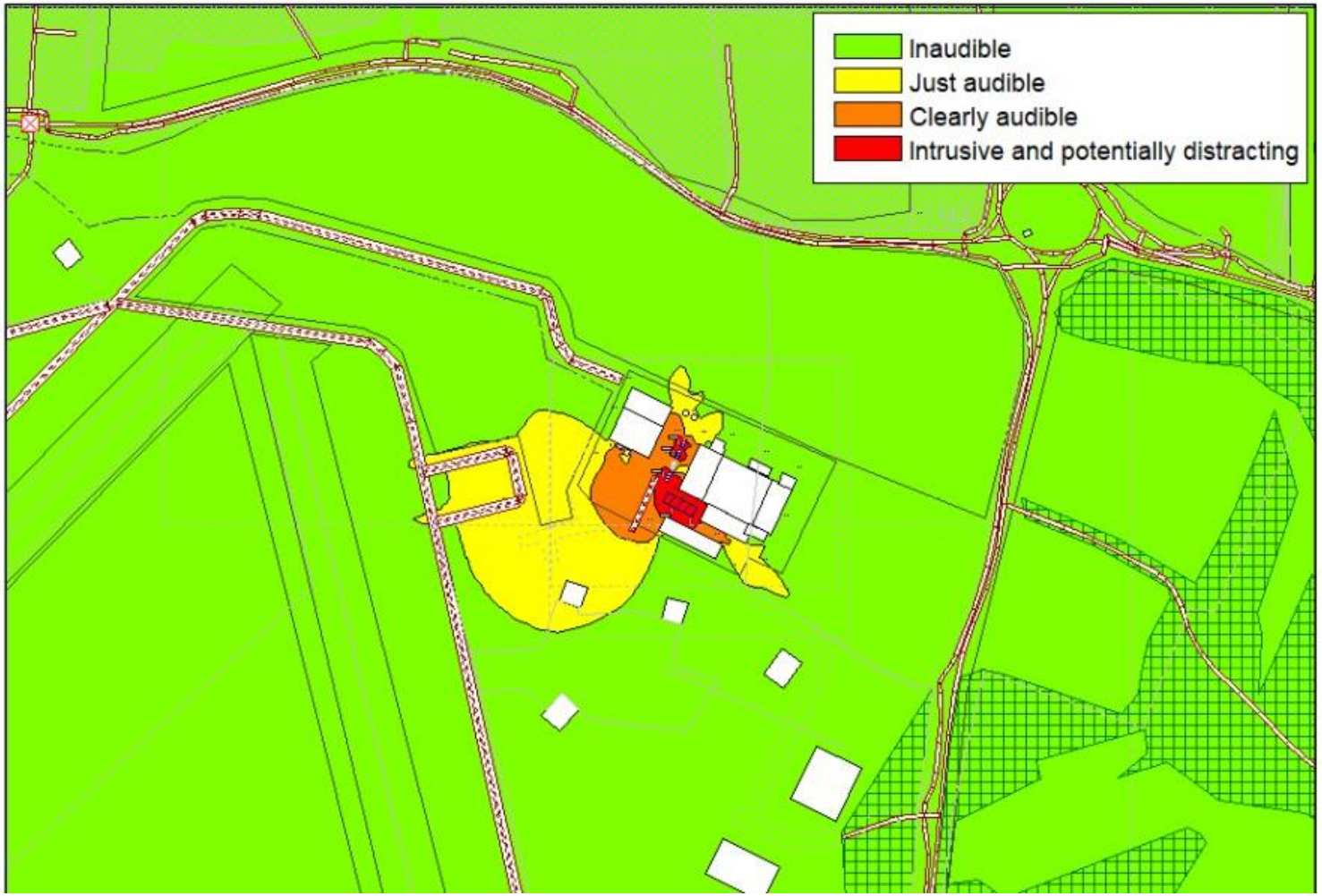
Results	Noise Level	Notes
Specific Sound Level ($L_{Aeq,1h}$)	19 dB	Free-field noise level calculated from CadnaA model at the façade line of the closest receptor.
Character Correction	2 dB	FFT analysis revealed tonal contribution from transformer units which are mainly prominent at 100Hz and 200Hz. Thus, 2dB have been given for the character correction contribution in accordance with BS4142, as 'just perceptible', as a worst case.
Rating Level ($L_{Aeq,1h}$)	21 dB	
Background Sound Level ($L_{A90,1h}$)	32 dB	As stated in Table 3.1 above.
Assessment Level (Rating Level minus Background Level)	-11 dB	

3.9 The results indicate that the worst-case Rating Level for full-load Converter Station operation is more than 10 dB below the background sound level for the night-time period at the nearest residential receptor. Although further away, the highest predicted sound pressure level from the Converter Station operation occurs at receptors to the west. At this location, the worst-case Rating Level for full-load Converter Station operation is 7 dB below the background sound level for the night-time period.

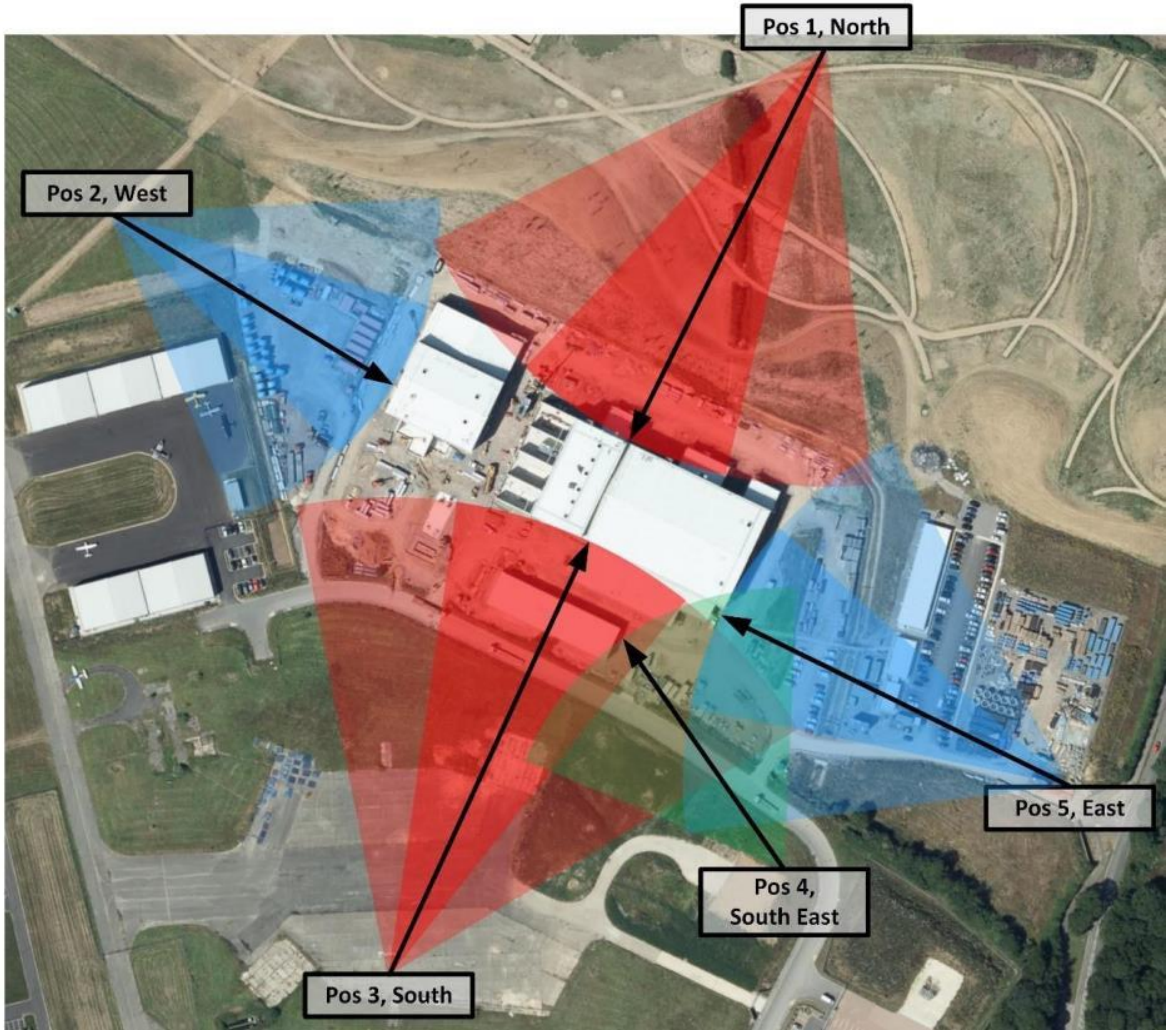
Noise Assessment Results

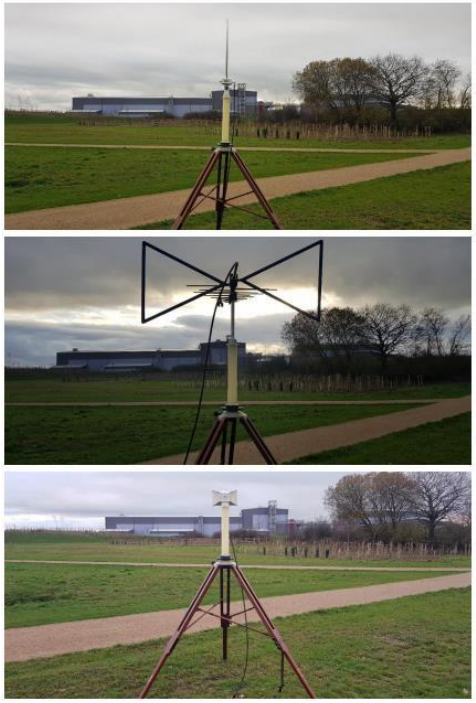
What we showed during public consultation events in June 2017

Figure 3.1: Range of Converter Station Audibility (day)



RFI Results





Cigre standard positions

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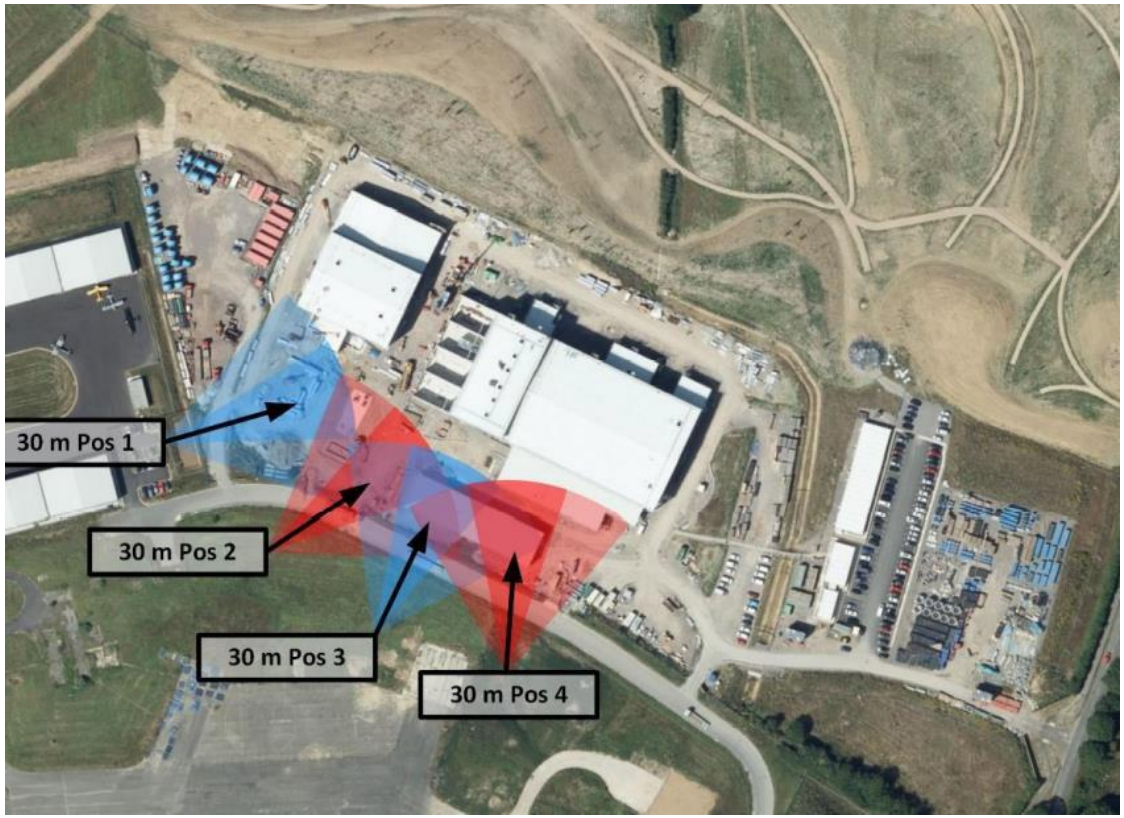

Close up (30m) positions

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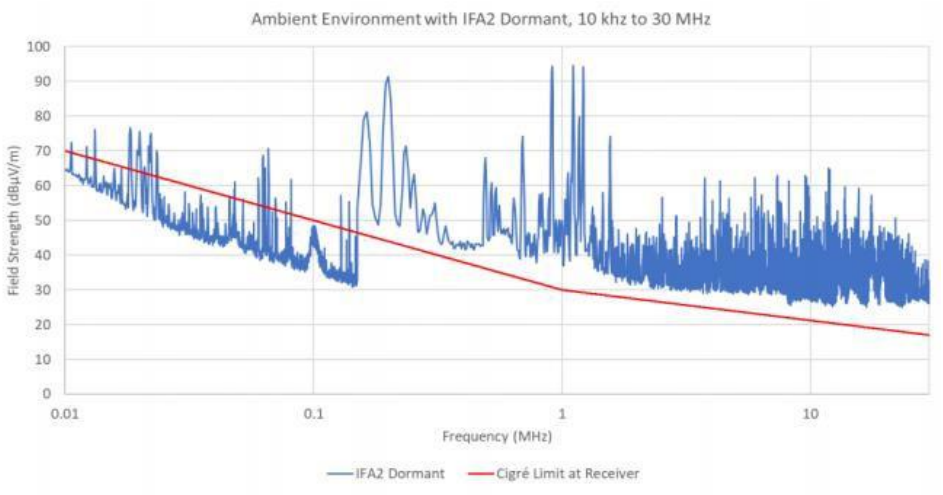


Figure 1: Examples of Background Environment

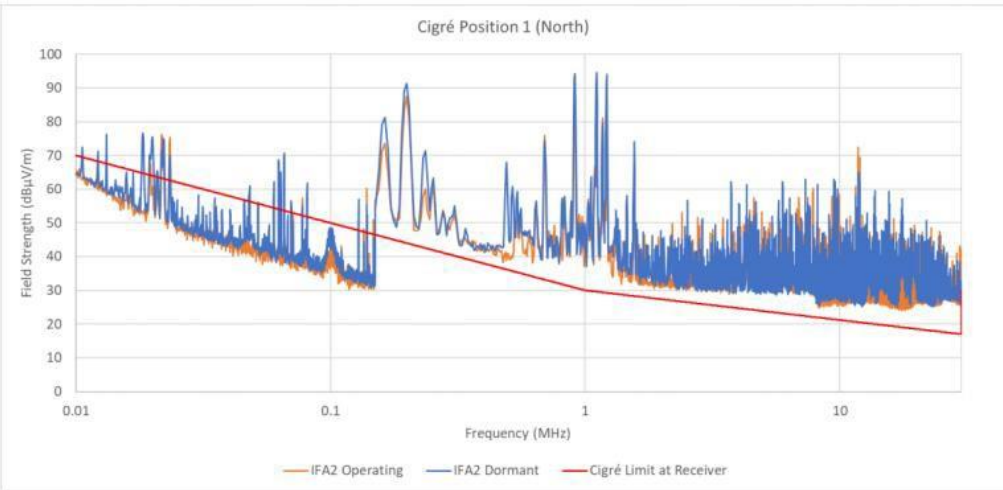


Figure 19: 10 kHz to 30 MHz Measurement Results – Cigré North

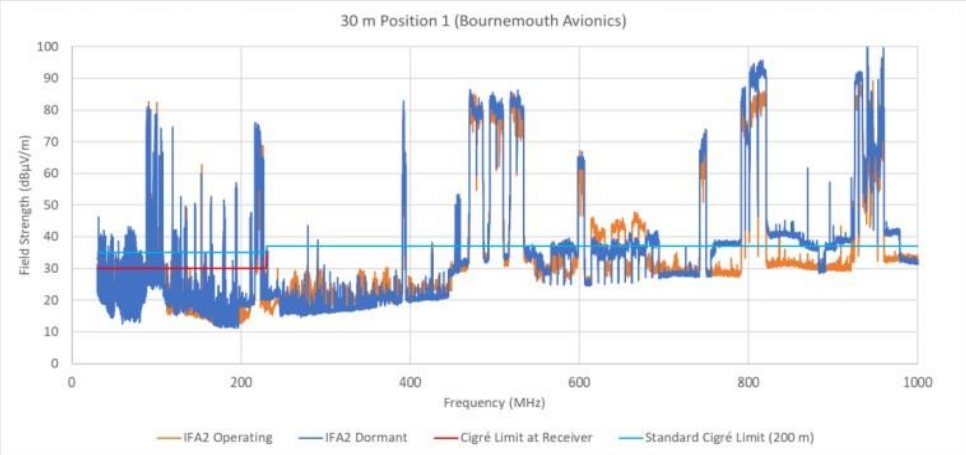


Figure 59: 30 MHz to 1 GHz Measurement Results – 30 m Bournemouth Avionics

RFI Conclusions

5.1 Measurements were performed at the IFA2 Converter Station on 23rd, 24th and 25th November 2020, covering the frequency ranges from 10 kHz to 6 GHz. Measurements were made covering the frequency bands of the following receivers:

- Aviation Systems:
  Aircraft VHF, DME, ATC and TCAS, NATS radars, Radar Altimeter
- Broadcast Services MF and HF, VHF, DAB radio, DTV
- Maritime VHF-FM communications
- Global Navigation Satellite System (GNSS), including GPS
- SATCOM , Emergency Radio Network frequencies
- 2G, 3G, 4G and 5G mobile phone networks
- Wireless Local Area Networks (WLAN) commonly used by drone/UAV) operators.

5.2 These measurements, made around the IFA2 facility, showed no significant emissions that would impact uses of the RF spectrum in this band.

NB Review process still in progress with TUV SUD – primarily associated with future development risk assessment, monitoring and maintenance. IFA2 has responded.

Airfield EMF Results

Condition 48 a) Alternating Current magnetic fields directly above the cables not more than 10 micro-Tesla when measured at ground level at each taxi-way crossing of the cables

The maximum magnetic fields measured at each taxiway crossing area were:

Location	Maximum measured AC magnetic field during full loading conditions
Crossing Area 1	7.25 µT
Crossing Area 2	6.32 µT
Crossing Area 3	6.42 µT
Crossing Area 4	7.52 µT

DC magnetic fields

Condition 48 b) Direct Current magnetic fields directly above the cables not more than 10 micro-Tesla when measured 1.5 metres above ground level at each taxi-way crossing of the cables

DC magnetic field measurements before and after cable energisation- Average before measurements of the entire airfield compared to the maximum 'after' measurements during full cable operation. The magnetic field change between the before and after is included in the far-right hand column

	Magnetic field (μT)		
Location	**'Before'**	**Maximum 'After'**	**Change**
Crossing Area 1	48.8	47.00	1.8
Crossing Area 2	48.8	50.31	1.51
Crossing Area 3	48.8	47.66	1.14
Crossing Area 4	48.8	49.82	1.02

Compass Deviation

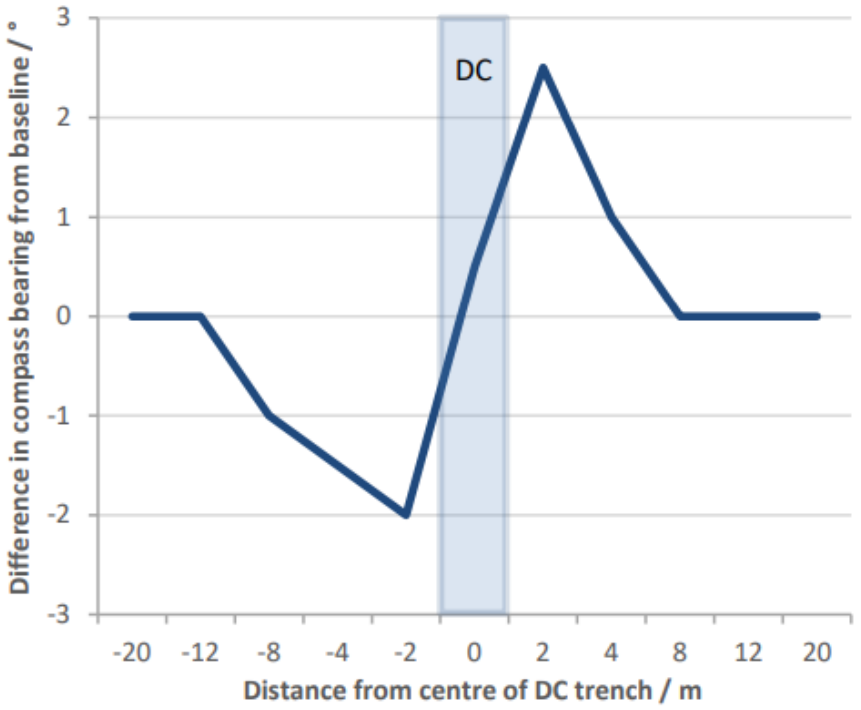
Condition 48 c) compass deviation not more than 1 degree when 12 metres or more away from Direct Current cables, measured at 1.5m, above ground level at each taxi-way crossing of the cables

Compass deviations at taxiway crossing points during full DC cable energisation after cable energisation

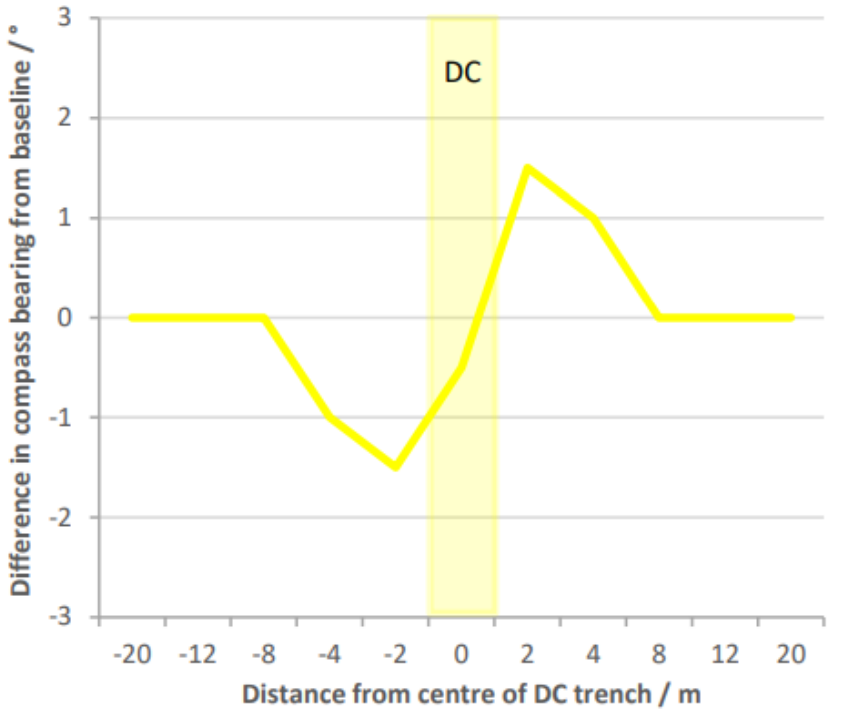
	Compass deviation	
Location	Maximum deviation over taxiway	Maximum deviation at 12m from cables
Crossing Area 1	2.5°	0°
Crossing Area 2	1.5°	0°
Crossing Area 3	2°	0°
Crossing Area 4	1°	0°

Compass deviation examples

Crossing Area 1



Crossing Area 2



A reminder of the October 2017 trials

Planning Decision Notice Planning Application Reference: P/16/0557/DP/Y

Decision Date: 21 April 2021

Fareham Borough Council, as the local planning authority, hereby APPROVES the discharge of DETAILS RESERVED BY CONDITIONS 49 (Magnetic Field Measurements) OF P/16/0557/OA

AS PROPOSED BY APPLICATION REFERENCE P/16/0557/DP/Y

6. Open Space


Hampshire
County Council
Emergency
07717421
Permit No.
CJ008773/ID.

7. CLG membership feedback and questions

8. AOB

9. Closing remarks