

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of	)	Call Sign: WI2XXG
3DB Communication Inc	)	
Renewal of Experimental License	)	File No:
and	)	0188-EX-CR-2021
Modification of Experimental License	)	0094-EX-CM-2021

INFORMAL OBJECTION

This informal objection is filed pursuant to § 5.95 of Commission Rules, by Shortwave Solutions LLC (“Petitioner”). Petitioner objects to the grant of the applications **0188-EX-CR-2021** (“Renewal Application”) and **0094-EX-CM-2021** (“Modification Application”) for an Experimental License under “Part 5” of Rules. Both applications are for call sign **WI2XXG**.

Summary of Argument

- Applications are inextricably linked to Broadcast Application IHF-C/P-20201228-00010 filed by “DPA Mac LLC” (“DPA”)
- 3DB used the filing of the Broadcast Application to justify the “Renewal Application”
- The Broadcast Application is “plainly not in accordance with FCC rules” per § 73.3566 because proposed point-to-point service is not permitted under rules applicable to International Broadcast
- As a condition of the renewal grant, 3DB was restricted from "providing services". Upon information and belief, 3DB/Raft continues to provide services, in clear violation of grant conditions.
- Enforcement Bureau must ensure 3DB complies with its license conditions, and cease providing services forthwith
- Experimental authorization for testing “in support of International Broadcast application” must cease once International Broadcast application is denied/dismissed/withdrawn.

1) EXPERIMENTAL PROCEEDINGS

In order to provide context for the current objections, the history of 3DB's filings of experimental applications with the Commission is set forth below:

On 5/11/2017, 3DB filed an initial experimental application 0300-EX-CN-2017, which was granted on 06/06/2017. The application listed St Charles, IL and Orangeburg, NY as the locations for the proposed experimental use.

On 11/17/2017, 3DB filed a new application 0841-EX-CN-2017, which was dismissed on 11/29/2017, on the following grounds [emphasis added]:

You are advised that the Commission is unable to grant your application for the facilities requested. Your request should be filed as a modification to the existing application of 0300-EX-CN-2017. That license is renewable so that it can accommodate your longer term propagation experimentation and study if needed. The technical experimentation should also be differentiated from any market trial request. If you still wish to request a market trial you should address the following concerns in any new application.

1. Identify the FCC service rules that would apply to the service you are trying to assess under the market trial.

2. Discuss why the market trial objectives, separate from the technical experiment, cannot be done in less than 5 years. What would be the minimum time needed to assess any market analysis?

On 12/06/2017, 3DB filed an application for modification, 0284-EX-CM-2017, which was granted on 12/28/2017. On 03/29/2018, 3DB filed an application for modification, 0059-EX-CM-2018, adding a location in Maple Park, IL. This application was granted on 06/06/2018.

On 02/22/2019, 3DB filed an application for modification, 0025-EX-CM-2019, which was granted on 03/22/2019, with the following condition: "Market trial is limited timing of operation. The market trial will not be renewed or extended."¹

On 04/02/2019, 3DB filed an application for renewal, 0171-EX-CR-2019, which was dismissed on 04/04/2019 "because the market trial will not be renewed as shown in special conditions."²

On 05/16/2019, 3DB filed an application renewal, 0281-EX-CR-2019, which renewal was granted, through 6/01/2021, on 06/24/2019.

On 03/08/2021, 3DB filed an application for renewal, 0152-EX-CR-2021. The application was dismissed (without prejudice) on 03/10/2021: "You are advised that the Commission is unable to grant your application for the facilities requested. The application is cancelled at the request of the applicant."³

¹ Available at: <https://apps.fcc.gov/els/GetAtt.html?id=226040&x=>.

² Available at: <https://apps.fcc.gov/els/GetAtt.html?id=226918&x=>.

³ Available at: <https://apps.fcc.gov/els/GetAtt.html?id=269229&x=>.

On 03/26/2021, 3DB filed an application 0188-EX-CR-2021 (“Renewal Application”). Unlike every previous application by 3DB, the exhibit in support of this application for renewal did not contain a request for confidentiality under § 0.459(b). As justification for seeking renewal of an application that was dismissed two weeks prior, 3DB noted that its affiliate “DPA Mac” was seeking a construction permit for an International Broadcast Station under Part 73 Subpart F of the rules. The Renewal Application was granted on 04/20/2021.

On 05/17/2021, 3DB filed an application 0094-EX-CM-2021 (“Modification Application”). This application was granted on 6/28/2021. As a part of the application, 3DB proposed to replace the St Charles, IL location with a second site in Maple Park, IL and the Orangeburg, NY site with a site in Johnsonburg, NJ.

The last two applications—the Renewal Application and the Modification Application—are the focus of this objection.

2) THE OBJECTION IS TIMELY

Even though the applications were granted, this objection is timely. Per § 5.95, which governs filing of informal objections in the Experimental Service, there is no clause requiring that the objection be made “before FCC action on any application,” unlike in other Services (e.g., § 73.3584). Therefore, this informal objection is as timely as if it were made prior to the FCC actions granting these applications.

3) RAFT BUSINESS MODEL AND RELATED ENTITIES

As described on its website,⁴ Raft Technologies (“Raft”), a company registered in Israel, is providing point-to-point low-latency data transmission services between Chicago and London/Frankfurt/Tokyo.

Raft does so via its affiliates, 3DB Communication Inc. (the grantee of a “Part 5” experimental license, and the subject of this objection) and DPA Mac (the applicant for a “Part 73” Broadcast license). Raft’s business model and relationships between 3DB and DPA are further described in Exhibit 3 at 4-5, 18-20..

4) THE BROADCAST APPLICATION IS FOUNDATIONAL TO THE EXPERIMENTAL GRANT.

The experimental grant to 3DB is inextricably connected to and premised upon the uses and representations set forth in an application (“Broadcast Application”) made by “DPA Mac” in the “Part 73” International Broadcast proceedings (File No. IHF-C/P-20201228-00010).

⁴ <http://www.raft-tech.com>

In 2017, the Commission asked 3DB to identify the section of the Rules with which its intended service would comply after satisfactory completion of market trials. With the “Broadcast Application”, 3DB has publicly identified the “International Broadcast” section as the intended service. In other words, the experimental renewal is predicated on the existence of a granted Broadcast Application - and the invalidity of DPA Mac’s broadcast application thus voids the rationale for granting the experimental license.

In its exhibit supporting the Renewal Application, 3DB explicitly states⁵ (cleaned up):

3DB’s affiliate, DPA Mac LLC (“DPA Mac”), has sought a permit to construct an international high-frequency radio service pursuant to Part 73(f) of the Commission’s rules. Consistent with 3DB’s prior statements to the Commission, renewal of 3DB’s experimental authorization will refine and support the equipment, technologies, and operating procedures that DPA Mac will use in its Part 73 commercial service offering....

3DB will use the renewed experimental authority to continue improving its technologies in anticipation of DPA Mac’s launch of commercial service pursuant to Part 73 of the Commission’s rules. Once testing to support DPA Mac’s Part 73 license application is complete, the need for experimental authority will end.

As early as 2017, 3DB was made aware of the limited duration of its “market trial” and of the need to identify the section of Rules with which it would eventually comply:

- On 11/29/2017, in a dismissal email of 0841-EX-CN-2017, FCC requested: “Identify the FCC service rules that would apply to the service you are trying to assess under the market trial.”
- On 03/22/2019, the grant of 0025-EX-CM-2019 had the following condition: “Market trial is limited timing of operation. The market trial will not be renewed or extended.”
- On 04/04/2019, 0171-EX-CR-2019 was dismissed “because the market trial will not be renewed as shown in special conditions.”
- On 03/08/2021, 3DB filed an application for renewal, 0152-EX-CR-2021. That application was dismissed (without prejudice) on 03/10/2021: “You are advised that the Commission is unable to grant your application for the facilities requested. The application is cancelled at the request of the applicant.”

The core reason for the grant of the Renewal Application (*c.f.* dismissal of 0152-EX-CR-2021 two weeks prior), was the Exhibit, whereby 3DB notified the Commission of DPA Mac’s application for “international broadcast” service and requested an extension of its experimental license as a stop-gap. In other words, *but for* the “Broadcast Application,” that experimental license to 3DB would not have been granted.

5) THE BROADCAST APPLICATION CANNOT BE GRANTED

⁵ File No 0188-EX-CR-2021, exhibit 1, available at <https://apps.fcc.gov/els/GetAtt.html?id=270470&x=>.

Petitioner filed an informal objection in that case (“First Broadcast Objection”) on 4/22/2021, which is incorporated by reference and attached as Exhibit 1. On 5/03/2021, DPA responded (“Broadcast Opposition”), which response is incorporated by reference and attached as Exhibit 2. On 07/19/2021, Petitioner filed a reply (“Second Broadcast Objection”), which reply is incorporated by reference and attached as Exhibit 3.

The “Broadcast Application” is defective, and “patently not in accordance with FCC rules” per § 73.3566(a), as summarized below, and further detailed in the “Broadcast Objections”.

- a) The proposed non-broadcast, fixed point-to-point service as “auxiliary” use is simply not permitted under rules applicable to International Broadcast (“Part 73 Subpart F”). No waiver was requested.⁶
- b) DPA makes an extraordinary claim of being able to provide “FM-quality” audio service at power levels of 25x required by § 73.751(c). DPA requested a waiver but failed to substantiate its waiver request with evidence that complies with the standards for frequency planning.⁷
- c) Application is missing required antenna pattern exhibits. No waiver was requested.⁸
- d) Application is requesting bandwidth and center frequencies not in compliance with band plan for the service, in violation of §73.758(c), while falsely certifying compliance with the same. No waiver was requested.⁹

Furthermore, DPA Mac’s Broadcast Application cannot be granted because:

- a) DPA made clearly incorrect statements regarding antenna characteristics to the Commission, in apparent violation of 1.17(a)(2). DPA lacks technical qualifications to be a licensee.¹⁰
- b) DPA is *de facto* controlled by Raft Technologies, making it not qualified to be a broadcast licensee without a waiver (which was not sought).¹¹
- c) DPA lacked candor in not disclosing its indirect control by Raft Technologies.¹²

6) REPRESENTATIONS IN THE BROADCAST APPLICATION ARE RELEVANT AND MATERIAL

The Broadcast Application was offered as a justification of the experimental renewal. If the Broadcast Application is “patently not in accordance” with FCC rules, the experimental authorization should cease accordingly.

⁶ Exhibit 1 (“First Broadcast Objection”) at 2-3, Exhibit 3 (“Second Broadcast Objection”) at 3-5

⁷ Exhibit 1 (“First Broadcast Objection”) at 4-7, Exhibit 3 (“Second Broadcast Objection”) at 5-8

⁸ Exhibit 1 (“First Broadcast Objection”) at 9, Exhibit 3 (“Second Broadcast Objection”) at 15-16

⁹ Exhibit 1 (“First Broadcast Objection”) at 9, Exhibit 3 (“Second Broadcast Objection”) at 13-14

¹⁰ Exhibit 3 (“Second Broadcast Objection”) at 5-10

¹¹ Exhibit 1 (“First Broadcast Objection”) at 10-12, Exhibit 3 (“Second Broadcast Objection”) at 17-20

¹² Exhibit 1 (“First Broadcast Objection”) at 10-12, Exhibit 3 (“Second Broadcast Objection”) at 20-21

7) DPA/RAFT LACKED CANDOR IN DISCLOSURE OF THE REAL-PARTY-IN-INTEREST

Among the issues raised in the Broadcast Objections, particularly important is the lack of candor in the disclosure of Raft as the real-party-in-interest. This raises issues with the qualifications of 3DB, DPA's affiliate, to be a commission licensee.

The Commission's long-standing precedent considers misconduct in other proceedings as grounds for license denial. As stated in Sinclair Hearing Designation Order¹³: "Although these three applications were withdrawn today, material questions remain because the real party-in-interest issue in this case includes a potential element of misrepresentation or lack of candor that may suggest granting other, related applications by the same party would not be in the public interest."

8) 3DB HAS NOT COMPLIED WITH THE CONDITIONS IN THE PREVIOUSLY GRANTED APPLICATIONS

The renewed license, effective 06/01/2021 is conditioned as follows: "(12) This operation is for experimental purposes only, provision of services is not permitted...." That same condition was applied to the modification grant.

Commission Rules, § 5.111, state:

(a) Stations may make only such transmissions as are necessary and directly related to the conduct of the licensee's stated program of experimentation and the related station instrument of authorization, and as governed by the provisions of the rules and regulations contained in this part....

(b) A licensee shall adhere to the program of experimentation as stated in its application or in the station instrument of authorization.

Upon information and belief, 3DB and its affiliate, Raft did not cease to provide their services.¹⁴

9) 3DB SHOULD NOT BE PERMITTED TO PROVIDE "SERVICES" OR "MARKET TRIAL" AT THE ADDITIONAL LOCATIONS WITHOUT REQUISITE BROADCAST APPLICATION

¹³ *In Re Sinclair Broadcast Group*, FCC 18-100

¹⁴ The grant of Modification Application has an additional condition: "Market trial is limited timing of operation [sic]. The market trial will not be renewed or extended." However, as conditions are clearly conjunctive, this cannot override the "provision of services is not authorized" condition. Regardless, this additional condition was not in effect between 06/01/2021 and 06/30/2021. Upon information and belief, Raft continued to provide services during this period.

In the “Modification Application”, 3DB requested experimental licenses for two additional sites: another site in Maple Park IL¹⁵) and in Johnsonburg, NJ. DPA’s broadcast application does not include these sites - and it is not clear how the second broadcast station in NY (presumably with same content, targeting the same audience) could be found to be “in public interest, convenience and necessity,” even if DPA subsequently were to include those sites.

Petitioner respectfully requests that the Commission withdraw 3DB’s authority to provide services (if such authority were even intended by the Commission staff) or market trial in those locations. Certainly, this is not an obstacle to 3DB to continue experimentation.

10) THIS OBJECTION DOES NOT DISPUTE COMMERCIAL USE OF FREQUENCIES

For the avoidance of doubt, Petitioner does not object to any commercial use of “Part 5” frequencies by 3DB. No such objection is or would be appropriate, as the FCC itself agrees. In fact, in the Report & Order that created the current experimental rules,¹⁶ FCC specifically declined an invitation to ban such “commercial use”:

“Clearwire states that it has observed an increase in the number of Part 5 STAs that are being issued for commercial uses – such as coverage of sporting events – where the application did not clearly indicate a research or experimental purpose. It contends that such grants are inconsistent with the ERS Rules and recommend that ERS STAs be granted only for true experiments. Clearwire recommends that a party desiring temporary rights for commercial use of spectrum that is licensed to another party should lease the spectrum from the licensee under Parts 1 and 27 of the Commission’s Rules. As Clearwire points out, we observe that a Part 5 authorization may be granted for a broad range of research and experimentation, including market trials. Additionally, an ERS applicant must describe the program of research and experimentation proposed and the specific objectives it seeks to accomplish stating “how the program of experimentation has a reasonable promise of contribution to the development, extension, or expansion, or utilization of the radio art, or is along lines not already investigated.” We rely on our staff to exercise their expertise and discretion in determining whether particular applications meet the requirements of the Part 5 rules and find no need to modify those rules. We find that our current approach reduces administrative burdens and provides cost savings to the public.”

Accordingly, any such “commercial use” of “Part 5” frequencies by 3DB is permitted; such use is and should be wholly unrelated to the grounds for this Objection.

¹⁵ “Additional Site” in Maple Park has coordinates 41-56-03N 88-29-01W

¹⁶ See “*Promoting Expanded Opportunities for Radio Experimentation*”, ET Docket 10-236, ¶ 154

11) REMEDIES REQUESTED

Petitioner respectfully requests that OET exercise its authority under § 5.83 to terminate the experimental license, as the “Broadcast” application underlying the current renewal is “patently not in conformance” with Commission rules.

Petitioner respectfully requests that OET ensure compliance by 3DB with its license conditions, specifically, that it cease providing services.

Petitioner respectfully requests that OET exercise its authority under § 5.83 to impose following conditions:

- Forbid 3DB from providing services from “Additional Sites”
- 3DB’s authorization for testing in support of DPA Mac’s International Broadcast application must cease once DPA Mac’s International Broadcast application is denied/dismissed/withdrawn.

Respectfully submitted,

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EXHIBIT 1:

**FIRST
BROADCAST
OBJECTION**

EXHIBIT 1 - FIRST BROADCAST OBJECTION

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of	)	
Application for International Broadcast	)	IHF-C-P-20201228-00010
Construction Permit	)	

INFORMAL OBJECTION

This informal objection is filed pursuant to Section §73.3587 of Commission Rules, by Shortwave Solutions LLC (“Objector”) regarding an Application for International Broadcast Construction Permit (“Application”) by DPA Mac LLC (“DPA”).

Objector’s argument follows:

- 1) Part 73 Subpart F (“International Broadcast”), §73.701(a) and § 2.106 does not permit the proposed “*data-service transmissions*”. DPA did not request a waiver.
- 2) The DPA-requested waiver of § 73.751(c) minimum power levels will not provide usable international broadcast service consistent with the “public interest” obligations. DPA’s statements to the contrary conflict with its own technical exhibits, with statements made to UK planning authorities – and with laws of physics. DPA lacked reasonable basis for believing such statements are correct and not misleading, in violation of § 1.17(a)(2)
- 3) Other waiver requests are not in the public interest.
- 4) The application is missing material information and requests authorizations not in conformance with the Rules, rendering it defective under § 1.934 (d) (1) and (2). Totality of mistakes appear to violate “*technical qualification to provide requested service*”, per § 73.731(a)(4)
- 5) DPA is de-facto controlled by Raft Technologies, an alien corporation, thus making it ineligible for broadcast license under § 310(b)(4). DPA did not request a waiver nor declaratory ruling required under § 1.5000(a)(1).
- 6) DPA lacked candor in concealing the true-party-in-interest and certification of compliance with § 310(b)(4). DPA appears to have lacked candor in certifications of compliance with § 73.731(a), § 73.753 and § 73.758.

In summary, the application is a poorly disguised attempt to continue operating point-to-point transmission services, originally licensed to a DPA affiliate under “Part 5” Rules, using the same equipment.

EXHIBIT 1 - FIRST BROADCAST OBJECTION

1) Part 73 Subpart F (“International Broadcast”) service only allows transmissions to the general public - and does not allow contemplated “data-service transmissions.”

Like two other proposed applications for International Broadcast¹, DPA proposes to broadcast commercial-free audio using DRM to qualify for an “International Broadcast” License (73 Part F), while earning revenue from *non-broadcast* data transmissions. Unlike the other applicants, DPA is very clear about it. This is acknowledged in the justification of “public convenience and necessity” in its narrative on page 3, and further repeated on pages 5 and 13 –and bear quoting in full (emphasis added, internal footnotes removed):

DPA Mac intends to provide: (1) an over-the-air, commercial-free audio broadcast of U.S. financial news and similar information to populations outside of the United States that have access to a standard, commercial, off-the-shelf HF receiver; and (2) investment data from points within the United States to locations outside the United States carried over a channel immediately adjacent to the HF broadcasts. The proceeds raised from offering the data-service transmissions—which involve a low-power, low-latency digital data transmission service provided to private investors, including small- and medium sized firms—will provide the necessary financial support to deploy and sustain the HF broadcasting business for the benefit of the public now and into the future.

[...]

As described above, DPA Mac proposes to continue offering the services that 3DB has provided pursuant to its experimental application for a market trial. More specifically, DPA Mac will continue broadcasting audio that provides “timely, accurate financial news” while simultaneously sending “supplemental, low latency digital data transmissions” to private investors.

[...]

Since 2017, 3DB has provided the service pursuant to its experimental license as part of a market trial, using its own equipment. Moving forward and pursuant to this application, DPA Mac will serve as licensee, as contemplated in 3DB’s most recent renewal application. The market trials have demonstrated the economic viability of the proposed service, which will allow DPA Mac to finance its commercial-free audio broadcast with revenues earned from providing its “low latency digital data transmission service” to “investment and commercial banks, proprietary trading companies, and security exchanges, among others.”

It is well-established that “broadcasting” only includes transmissions intended to, and received by, the general public. In one of the earliest cases before the Commission², the programming of a licensee included the broadcasting of coded horse race results. Intelligible reception of these results was restricted to a particular group which had subscribed to a so-called “scratch sheet” containing interpretations of the code. The Commission ruled that “*this was a violation of the Commission’s regulations and the station license which authorized dissemination to the general public and not particular individuals or classes thereof.*”. Similar results were reached in other cases.³

¹ FCC File No: *IHF-C/P-20200427-00001* and *IHF-LIC-20200710-00002*

² *Bremer Broadcasting Co.*, 2 F.C.C. 79 (1935).

³ *Scroggin & Co*, 1 FCC 194 (1935), *Muzak Corporation*, 8 FCC 581 (1941), *Functional Music v FCC*, 274 F. 2d 254 (C.A.D.C, 1958)

EXHIBIT 1 - FIRST BROADCAST OBJECTION

Subsequently, certain “subcarrier” or “multiplex” transmissions were authorized as “Subsidiary Communications Authority” in the Commission’s rulemaking proceedings, for example:

- FM multiplex ⁴
- AM subcarrier authority ⁵
- DTV ancillary/supplemental use authority ⁶

Certainly, if the Commission had intended to permit non-broadcast use for International HF Service, it would have stated so explicitly, as it has done in every other case stemming from above proceedings – such as modifying “Table of Frequency Allocations” (§2.106), as shown below:

- *NG5 In the band 535-1705 kHz, AM broadcast licensees and permittees may use their AM carrier on a secondary basis to transmit signals intended for both broadcast and non-broadcast purposes. In the band 88-108 MHz, FM broadcast licensees and permittees are permitted to use subcarriers on a secondary basis to transmit signals intended for both broadcast and non-broadcast purposes. In the bands 54-72, 76-88, 174-216, 470-608, and 614-698 MHz, TV broadcast licensees and permittees are permitted to use subcarriers on a secondary basis for both broadcast and non-broadcast purposes.*
- *NG14 TV broadcast stations authorized to operate in the bands 54-72, 76-88, 174-216, 470-608, and 614-698 MHz may use a portion of the television vertical blanking interval for the transmission of telecommunications signals [..]*
- *NG149 The bands 54-72 MHz, 76-88 MHz, 174-216 MHz, 470-512 MHz, 512-608 MHz, and 614-698 MHz are also allocated to the fixed service to permit subscription television operations in accordance with 47 CFR part 73 [..]*

No such footnote exists for frequencies allocated to International HF Broadcasting Service, and §73.701(a) simply defines “International broadcast station” as “[..] transmissions of which are intended to be received directly by the general public in foreign countries”⁷.

In a recent R&O⁸ related to ancillary services to be provided by TV broadcasters, “The Commission has determined that the definition of “broadcasting” in the Act applies to services intended to be received by an indiscriminate public and has identified three indicia of a lack of such intent: (1) the service is not receivable on conventional television sets and requires a licensee or programmer-provided special antennae and/or signal converter so the signal can be received in the home; (2) the programming is encrypted in a way that “makes it unusable by the public” and that is not “enjoyable without the aid of decoders”; and (3) the provider and the viewer are engaged in a private contractual relationship” – and declined to authorize any “individualized” programming.

Substituting radio for television, three indicia of “broadcast” are: **non-proprietary decoder, no encryption and no contractual relationship** – which renders “revenues earned from providing its ‘low latency digital data transmission service’” a commercial impossibility.

⁴ FCC 55-340 (1956), FCC 74-367 (1974), FCC 84-187 (1984), FCC 86-211 (1986)

⁵ FCC 81-585 (1981), FCC 84-301 (1984)

⁶ FCC 97-247 (1997), FCC 98-304 (1999)

⁷ It is noted that § 73.758 allows for “datacasting”, however, such transmission of data must still satisfy the same indicia of broadcast, as further discussed in undersigned’s objections to applications *IHF-C/P-20200427-00001* and *IHF-LIC-20200710-00002*. Regardless, DPA does not appear to claim “subcarrier” authority under § 73.758.

⁸ “Authorizing “Next Generation” Broadcast Television Standard” 32 FCC Rcd 9930 (2017) at § 9

EXHIBIT 1 - FIRST BROADCAST OBJECTION

2) **Proposed transmitter power levels are insufficient to provide adequate service:**

In its request for waiver of § 73.751(c) requirement of 10 kW **mean** power: DPA claims that:

Technological advances have rendered a minimum power requirement obsolete, and DPA Mac's technological showing demonstrates that it can successfully operate at a much lower power of 2 kW.

DPA further claims:

*[...] system design assures that the SNR level at the receive location (e.g., London) is high enough to meet a standard off-the-shelf DRM receiver (SNR threshold) and guarantees reception quality.⁹
[...] Consistent with the DRM standard, the audio quality is comparable to FM broadcasts, satisfying Section 73.758(c)(3)¹⁰*

DPA provides no evidence for these claims – and it cannot. DPA may be able to transmit its “low latency data” at lower power levels due to its technological advances – but such advances do not apply to DRM, a standardized technology, with off-the-shelf receivers. At proposed power levels, it is physically impossible to meet the claimed “audio quality comparable to FM broadcasts” claimed by DPA.

Furthermore, the claim of “guaranteed reception quality” is patently false, as evidenced by Raft Technologies (DPA’s parent)¹¹ own filings with the public authorities in the United Kingdom, requesting “Very Special Circumstances” to obtain a zoning permission to install a tower in “Green Belt” area near London (where development is otherwise prohibited)¹². In its filings, under the “*Quality of Signal*” subsection, Raft states¹³ [emphasis added]:

[7.10] The aerial site at Ponds Wood was recently erected as a temporary site for experimentation purposes. However, the engineers were surprised and delighted to find that Ponds Wood was a remarkably ‘quiet’ site in terms of radio interference. [...]

[7.17]: The low-level amplitude of shortwave radio signals coming from the US is at a measured level of (typically) minus 80dBm. The average interference level in an area such as South Bucks and Slough is worse/less than minus 50dBm. Under those circumstances, the low-level shortwave is ‘drowned out’. The unique circumstances at Ponds Wood, is that there is an extraordinarily low level of interference (typically only minus 110dBm).

[7.18] it is thought this is for the following reasons. See Appendix 5:

- a. It is a wood and therefore there is little radio activity within it.*
- b. Burnham Beeches is in the vicinity and tends to ‘soaks up’ interference.*
- c. Burnham Beeches does not suffer from a great deal of urban electronic transmission interference.*

Further, in a subsequent email to planning authority, DPA affiliate states:

Failing to grant permission will simply shut it all down, as without a proper receive-site like we have in Ponds Wood Farm, we simply cannot operate.

⁹ Application Narrative, page 4

¹⁰ Application Narrative, page 9

¹¹ Connections between DPA Mac / 3DB Communication / Raft / Ratesu are detailed further below in this objection.

¹² It should also be noted that the tower in question was erected despite the permission being denied by local planning authority, and appeal being dismissed. Further details can be seen at in *Chiltern and South Bucks Planning Authority* case PL/20/0163/FA, <https://pa.chilternandsouthbucks.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=Q45COZESKSD00>

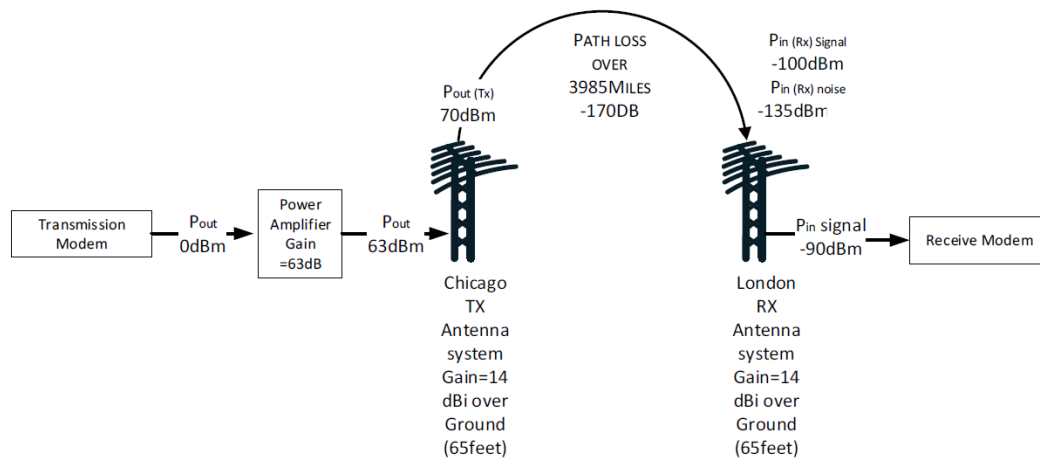
¹³ “Design and Access Statement”, Section 7: “Very Special Circumstances” – the excerpt is included as Attachment 3. Full document can be obtained from the link above.

EXHIBIT 1 - FIRST BROADCAST OBJECTION

To summarize above – DPA’s signal can **only** be received **by DPA** in UK, under following conditions:

- Receiver is a full-size Yagi antenna (50 ft across), at a mast at 65ft above ground.
- DPA transmitting **only** the “sideband data” – not DRM broadcast proposed.
- And even then, only at one specific low-noise site – without which DPA cannot operate.

Comparing statements made to UK Planning Authority (above) to the System Diagram in this Application¹⁴ (duplicated below for clarity) and referencing the expected atmospheric noise, following can be seen:



Indeed, the power of “thermal noise” (kTB noise)¹⁵, at 10kHz DRM channel bandwidth is -134 dBm (closely matching -135dBm listed as “Pin (Rx) noise” by DPA). The **peak** power of signal received in London (with isotropic antenna) is approximately -100dBm. Absolute minimum SNR for reliable DRM30 reception at HF frequencies at lowest possible bitrate and most optimistic assumptions¹⁶ is 14.7dB. DPA-claimed “FM-quality” broadcast, which would require further increase of SNR by 5 dB)

It should be noted that § 73.751(c) specifies **mean** power, whereas DPA’s proposed transmitter is rated for 2 kW **peak** power¹⁷. For DRM modulation, “peak to average power ratio” (PAPR)^{18 19} is over 10:1 (10dB), resulting in “peak power” requirement of 100kW. For further calculations, to give benefit of the doubt, the state-of-the-art²⁰ 6dB derating from “peak to average” power will be considered.

¹⁴ Application Narrative, page 4

¹⁵ https://en.wikipedia.org/wiki/Johnson%E2%80%93Nyquist_noise

¹⁶ “Planning parameters for digital sound broadcasting at frequencies below 30 MHz”, ITU-R Rec BS.1615-2 (12/2020), Appendix 2 to Annex 1, page 9, Table 10, “HF propagation”, “Channel Mode 5”

¹⁷ DPA Exhibit 10, “System Block Diagram”

¹⁸ “DRM Handbook – An Introduction and Implementation Guide, Version 5” (5/2020). Section 9.2.4 at page 43-44, available at <https://www.drm.org/wp-content/uploads/2020/05/DRM-Handbook-Version-5.pdf>: “the peak power capability of one example of a 500kW PDM transmitter, when operating as a linear amplifier, is reduced to about 300kW. Thus, the maximum average DRM signal power available is about 30kW”. As another example, application IHF-C/P-20200427-00001 specifies 2xCE-50000WS-HF-GEN2 amplifiers: 5000 watts average, 50000 watts PEP.

¹⁹ “Determination and measurement of the power of amplitude-modulated radio transmitters”, ITU-R Rec. SM.326-7 (1998), available at: https://www.itu.int/dms_pubrec/itu-r/rec/sm/R-REC-SM.326-7-199811-I!!PDF-E.pdf

²⁰ Moghaddamnia, S., Waal, A., Fuhrwerk, M. et al. On the efficiency of PAPR reduction schemes deployed for DRM systems. J Wireless Com Network 2016, 255 (2016). <https://doi.org/10.1186/s13638-016-0747-5>

EXHIBIT 1 - FIRST BROADCAST OBJECTION

The “noise margin” above thermal noise (without considering receive antenna gain) is then:

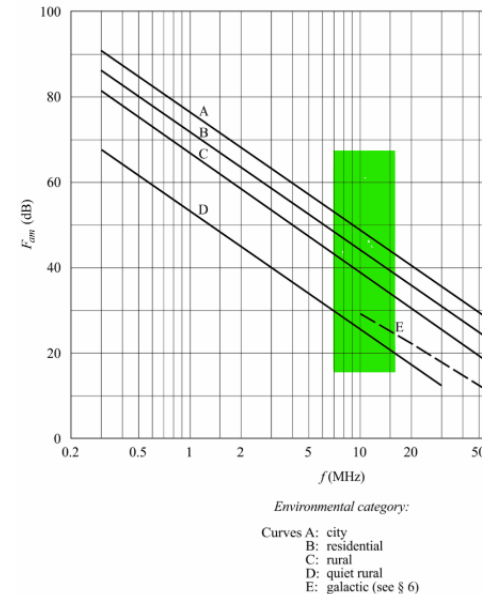
- 100 dBm: Received signal, “peak power”
- 6dB: PAPR derating
- 14.7dB: Minimum Reception SNR (not FM-quality)
- (-134) dBm: Thermal noise floor @ 10kHz bandwidth
- Total noise margin for atmospheric noise: -100-6-14.7+134, or approximately 13dB.

As can be seen from the atmospheric noise chart ²¹ on the right, the power level is insufficient except when paired with a high-directivity receive antenna (>10dB) and only in a “quiet rural” environment – exactly as DPA experienced.

An FCC “fact sheet” for International Broadcast²² states [emphasis and a footnote added]: “*The minimum transmitter output power required is 50 kilowatts (kW) and a directional antenna is required with a minimum gain of 10 decibels (dB). Most existing stations have a transmitter power greater than 50 kW and an antenna gain greater than 10 dB in an attempt to overcome the increasing congestion and interference in the limited frequency spectrum allocated to this service*²³. *As a result, applicants should also submit with their application a propagation analysis, based on the proposed transmitter output power and antenna gain, showing that an acceptable signal strength will reach the intended target area(s).*”. DPA neglected to provide said analysis^{24 25}.

This basic analysis²⁶ was completed here, by calculating the probability of *instantaneous* SNR meeting requirements for a Chicago-Paris²⁷ circuit over the next 12 months²⁸. All possible ambiguities were resolved in favor of DPA – in other words, this is the best-case scenario. As it can be seen, there is *barely a single hour of the day with >50% probability of instantaneous SNR meeting requirements*.

FIGURE 39
Median values of man-made noise power
for a short vertical lossless grounded monopole antenna



²¹ “Radio Noise”, ITU-R Rec P.372-14 (08/2019), Figure 39 – highlighted are broadcast frequencies requested by DPA. The chart shows “atmospheric noise” in excess of “thermal noise”.

²² <https://www.fcc.gov/general/building-high-frequency-shortwave-international-broadcasting-station>

²³ It should be noted that in the past decade, while congestion in shortwave spectrum has decreased, it remains a factor. At the same time, the amplitude of “man-made” background noise (and required power to provide same SNR and reception quality) considerably increased (as acknowledged in Ratusu statement above).

²⁴ “Fact sheet” is not a part of FCC Rules, but given the circumstances and waiver request, it would be expected.

²⁵ DPA makes references to “DRM Proof of Concept Report” in its footnotes (fn. 29 and 37). The report is not included as exhibit. Regardless, it cannot substitute for a simple “area propagation analysis”.

²⁶ Proper analysis (with area coverage) would require detailed antenna information, not included by DPA

²⁷ Paris was chosen as a city roughly in the center of CIRAF zone 28 (see §73.703)

²⁸ Attachment 1

EXHIBIT 1 - FIRST BROADCAST OBJECTION

The assumptions made in the analysis:

- “required SNR” is set to absolute minimum for DRM modulation, 15 dB (vs the claimed “FM-quality broadcast”, which would require 20dB)
- Man-made noise level is “rural” (line C in the figure)
- Average transmitter power derated by 6dB from 2000W peak power (vs the expected 10dB derating)
- Transmitter antenna has constant 16 dBi gain (DPA claims 10-16dBi without providing supporting documents)
- Antenna vertical pattern (take-off angle) is not considered.
- Ionospheric propagation will continue to improve, sunspot index reaching 35 by April 2022
- Multipath impact on SNR is not considered.
- 100% of amplifier power is used for DRM, no power reserved for “data transmission”

It should be noted that the “best case” analysis above evaluates “instantaneous SNR”. The “broadcast service availability” considers the random fluctuations of SNR as well. Broadcast service availability metrics require “instantaneous SNR” to be above 90% for 50% of time.

It is rather hard to see how “amateur radio”-level transmitters and antennas can support “*FM-quality*” broadcast of “*US financial news*” that would promote national interests. The magnitude of discrepancy raises serious questions whether the claim of “*guaranteeing reception quality*” were made in good faith – or “*technical qualification to provide requested service*” under 73.731(a)(4).

The FCC “International Broadcast” fact sheet states: “*The cost of a station with a minimum transmitter power of 50 kW²⁹ and a directional antenna with a minimum gain of 10 dB, the land for the station, the studios, and the operational cost could easily exceed one million dollars.*” Certainly the \$1,000,000 projected cost of a station that complies with FCC requirements is within reach of DPA’s parent company: Raft received over \$12,500,000 in venture capital financing earlier³⁰, and, within a month of filing instant application, closed an additional private investment round³¹, proclaiming “*The Company intends to utilize the funding to expand its infrastructure footprint across major money centers globally and to continue to grow its latency-sensitive capital markets business*”.

The Commission has stated³², in case of AM broadcaster: “*An AM radio applicant’s specification of its desired facilities amounts to a business judgment, and as a general proposition we will not second-guess that judgment, absent evidence (not present here) that a business decision is allegedly being used to perpetrate a sham.*”. In this case, “business judgement” of equipment specification should be evaluated in context of its inadequacy to provide service claimed.

²⁹ Most components are rated based on *peak* power, which, for DRM modulation is 10x higher than mean power. As such, costs of amplifiers and infrastructure for “50kW peak power” (for analog broadcast) and “10kW mean power” (for DRM30 broadcast) power output are comparable – see footnote 18 above.

³⁰ <https://www.crunchbase.com/organization/raft-technologies>

³¹ <https://www.rblt.com/news/rosenblatt-helps-raft-technologies-a-pioneering-low-latency-network-provider-secure-investment-to-drive-its-next-phase-of-growth>

³² *Alvin Lou Media*, MO&O, FCC 04-6

EXHIBIT 1 - FIRST BROADCAST OBJECTION

3) Other waivers are not in public interest

In its request for waiver of Section 73.751(c): DPA claims that [emphasis added].

*Technological advances have rendered a minimum power requirement obsolete, and DPA Mac's technological showing demonstrates that it can successfully operate at a much lower power of 2 kW. Operating at this lower power will increase the efficiency of transmissions and **reduce the likelihood of harmful interference to adjacent band operations**, allowing DPA Mac to maximize use of this spectrum.*

[...]

Finally, DPA Mac's ability to efficiently broadcast this information using lower power: (1) maximizes use of this spectrum by allowing DPA Mac to transmit data using PLMR spectrum that would otherwise lie fallow due to adjacent-channel rolloff from typical IHF facilities operating higher power; and (2) reduces the threat of interference to other users of the spectrum.

This is not how it works. This is not how it works at all. The above statements

- misstate the purpose of 73.751,
- misstate the “likelihood of interference” for shortwave broadcast, and
- misunderstand international regulation of broadcast service.
- makes puzzling/unsubstantiated claims about PLMR (Part 90) spectrum
- makes puzzling claims about “adjacent-channel roll-off”

Because of the characteristics of short-wave propagation, **any** transmission at a broadcast frequency has nearly-worldwide propagation and potential for interference – which is why frequencies are coordinated internationally by “High Frequency Co-Ordination Conference”³³ (HFCC), a sector member of ITU – and result in the “HF Broadcasting Schedule”, an ITU-status document. Major changes of the schedule take place bi-annually (due to seasonal changes of shortwave propagation)³⁴, and FCC staff represents the interests of US broadcasters in HFCC coordination – using the licensee-requested bands and hours of operation as guidance.

Reducing transmitter power makes it *harder* to coordinate. Unlike conventional services (PLMR, microwave), there is no “presumption” for a broadcaster to maintain its frequency assignment every season. Every broadcaster is treated equally (regardless of when they initially started operation), and the coordination criteria is to guarantee, for all combinations of transmitters and intended receive areas, that “Signal / Total Interference” ratio is sufficient to provide intended service.³⁵

The problem is not interference *from* DPA to other broadcasters. The problem is interference *to* the marginal DPA signal from other broadcasters, who will be restricted from using such frequencies. For HFCC coordination purposes, there is no concept of “accepting interference”. Additionally, “accepting” interference (and thus, losing service) will defeat the “public interest” of international broadcast.

³³ <http://www.hfcc.org/>

³⁴ §73.702, also *DRM Handbook, supra*, p37: “For the HF bands above 5900 kHz, all DRM broadcasts are coordinated in accordance with Article 12 of the ITU-R Radio Regulations - the 6 month scheduling procedure - in the same way as for analogue broadcasts”

³⁵ “Radio-frequency protection ratios in LF, MF and HF broadcasting”, ITU Rec BS.560-4 (1997), available at https://www.itu.int/dms_pubrec/itu-r/rec/bs/R-REC-BS.560-4-199710-I!!PDF-E.pdf

EXHIBIT 1 - FIRST BROADCAST OBJECTION

4) Application is defective per § 1.934 (d)

- a) DPA requests “necessary bandwidth” of 58kHz and provides emission code (58K0W7D)³⁶, that does not comply with DRM emissions specified in § 73.758 (c)(1). DPA did not request a waiver of this rule.
- b) DPA’s requested “center frequencies” do not conform to the “*5kHz raster currently in use for HFBC bands*”³⁷. DPA did not request a waiver of this rule.
- c) Form 309, Section V, Box 7(b) states “Applicants for international broadcasting stations should submit all pertinent data regarding antenna characteristics in accordance with the requirements of the International Telecommunication Union’s Radio Regulations”.

DPA lists four antennas on Form 309, Section V. However, the supporting Exhibit 11 (“Antenna structure”) only shows two. DPA did not provide any of the antenna patterns, provided no information whatsoever on two out of four proposed antennas, and provided only the very basic mechanical specifications (and an assembly manual) for the other two antennas. Only a single antenna exhibit shows expected gain. Exhibits do not indicate which amplifier and antenna is planned to be used for each frequency band.

- d) Form 309, Section V, Box 4.2 requires “transmitter locations and call signs of all known radio stations [...] within 2 miles of proposed transmitter”. DPA listed “None”. FCC Site/Market query identifies twelve, **including two in “Public Safety Pool”**: WPWJ640 and WQAL920.
- e) The antenna exhibits provided do not demonstrate the claimed compliance³⁸ with § 73.753 requirements of “*radiated power in the maximum lobe toward the specific zone or area of reception intended to be served shall be at least 10 times the average power from the antenna in the horizontal plane. Radiation in all other directions shall be suppressed to the maximum extent technically feasible*”.

The above requirement, for frequencies below 10 MHz, cannot be **possibly** satisfied with antennas of type and dimensions proposed by DPA. It should be noted that the 10dB “horizontal directivity” required in above paragraph is *not* the same as “10 dBi gain”³⁹.

Defects (c) and (d) above render the application “incomplete” per § 1.934 (d)(1), due to missing material information necessary for FCC evaluation of the application. Defects (a), (b) and (e) above violate § 1.934 (d)(2), by requesting authorization not in compliance with the Rules.

³⁶ Form 309, Section V, box 2. Repeated in Narrative, page 13

³⁷ DPA chose to, but was not required to provide this information, per § 73.3516

³⁸ Narrative, page 8

³⁹ For example, “monopole antenna” over good ground has a gain of 5.2dBi, yet has no horizontal directivity.

EXHIBIT 1 - FIRST BROADCAST OBJECTION

5) DPA Mac LLC (US), 3DB Communication Inc (US), Raft Technologies Ltd (Israel) and Ratesu Ltd (UK)

DPA self-certified that none of the pro-forma § 310(b)(4) factors apply. However, it is well-established precedent that “indirect” control prohibited by § 310(b)(4) is not solely about “pro forma ownership” but also includes “de facto” control and must consider circumstances of parties’ economic relationship.

According to public records, filings before the Commission, and public statements by Raft executives, DPA appears to be *indirectly* controlled by Raft Technologies – a company registered in Israel. As such, per §310(b)(4), as entity “indirectly” controlled by aliens, it is not eligible for broadcast license without a §310 waiver.

The companies below have interlocking relationships:

- 1) DPA Mac LLC (Delaware LLC): Applicant in this proceeding
- 2) 3DB Communication Inc (Delaware Corporation): Licensee of Part 5 licenses
- 3) Ratesu Limited (UK Private Limited Company): Applicant in UK zoning proceedings
- 4) Raft Technologies Ltd (Israeli Corporation): Controlling, and revenue-receiving entity.

It is unquestionable that Ratesu Limited (applicant in UK zoning proceedings) is owned by Raft Technologies:

- Incorporation Certificate lists Raft as sole shareholder ⁴⁰
- All communications to local council authorities are signed by Raft employees.

It is also unquestionable that 3DB is controlled by Raft and affiliated aliens:

- Sole Director of 3DB is Idan Moskovich ⁴¹, a British National ⁴²
- Idan Moskovich also is the “Authorized Representative” and signatory of “Part 5” license renewal applications⁴³ filed by 3DB

Indeed, at a public trade show presentation⁴⁴, Haim Ben-Ami, the CEO of Raft Technologies, stated: “we developed everything in-house [...], **we own [the] links**, we have them working for more than a year, [...] and of course with all relevant regulation and so forth. [...] this is the footprint that we have in each such venue and each such place, **we have a team that supports our activity**”. Per its own press releases, Raft exercises operational control over 3DB’s existing network⁴⁵, and operates the Network Operation Center (NOC).⁴⁶

DPA (applicant herein) claims to be effectively “successor-in-interest” of 3DB (controlled by Raft), as per its own statements in application:

“3DB or a successor company will seek an international broadcast service license for use of the HF spectrum once its market trial and technical analyses are complete”⁴⁷

⁴⁰ Ratesu Limited: Incorporation filing (Attachment 2A)

⁴¹ 3DB Communication - Delaware Franchise Tax Report, 2019 (Attachment 2B)

⁴² Ratesu Limited: Incorporation filing (Attachment 2A)

⁴³ FCC File Nos: 0188-EX-CR-2021 and 0152-EX-CR-2021

⁴⁴ Trading Show NYC, 9/25/2019, archived at <https://www.youtube.com/watch?v=NXAMTsQKvwU&t=73s>

⁴⁵ Such control over 3DB, a “Part 5” licensee, does not violate Commission Rules.

⁴⁶ <http://www.raft-tech.com/raft-articles/short-wave-links-for-trading-during-the-corona-virus-crises/>

⁴⁷ Application Narrative, footnote 7

EXHIBIT 1 - FIRST BROADCAST OBJECTION

*“3DB or a successor company intends to pursue [...] a permanent, commercial license using the international HF bands.”*⁴⁸

*“DPA Mac proposes to continue offering the services that 3DB has provided pursuant to its experimental application for a market trial.”*⁴⁹

Raft’s control continues: the signatory of all exhibits attached to DPA’s instant “Part 73” application is Tamir Ostfeld⁵⁰ – Deputy CEO and COO of Raft Technologies. Furthermore, DPA’s “Part 73” application lists identical equipment as 3DB’s “Part 5” application.

DPA’s business model is funding commercial-free DRM broadcast by selling “low-latency” data transmission services. However, DPA is not engaged in this activity – Raft Technologies is. Quoting the application:⁵¹

The proceeds raised from offering the data-service transmissions—which involve a low-power, low-latency digital data transmission service provided to private investors, including small- and medium sized firms—will provide the necessary financial support to deploy and sustain the HF broadcasting business for the benefit of the public now and into the future.

Compared to the Raft website:⁵²

RAFT Technologies develops and deploys a wireless ultra-low latency, transcontinental communications system. The system is highly suitable for financial markets and in particular for HFT – algorithmic trading firms. It enables Ultra-low latency communication between different exchanges and delivers data directly between exchange co-locations with the lowest latency available on the market today. [...]

We have intimate knowledge on how to combine the essential components of all legal, location and technological aspects of communications systems.

As a threshold matter, Commission precedent concerning “de facto control” and “real-party-in-interest” as it relates to §310(b) for license transfers under §310(d) is clearly applicable to the initial application where the same §310(b) factors are at stake.

Raft is the controlling entity behind DPA (as successor of 3DB), and this control extends beyond “mere possibility”⁵³ - whether the indicia of control are evaluated under the six-part *Intermountain Microwave* standard applicable to “common carriers”, or three-part standard (programming, personnel, financing) applicable to broadcasters under the *Cablecom General*⁵⁴ standard.

In the instant case, the “programming” (*over-the-air, commercial-free audio broadcast of U.S. financial news and similar information to populations outside of the United States that have access to a standard, commercial, off-the-shelf HF receiver*) is a sideshow in commercial terms. As the broadcast is “commercial-free”, whether DPA sources such programming through Raft does not affect DPA finances. The only revenue of 3DB (or its successor, DPA) will come from Raft, Raft staff signs DPA’s technical exhibits, Raft operates 3DB’s NOC.

⁴⁸ Application Narrative, footnote 59

⁴⁹ Application Narrative, page 5

⁵⁰ <http://www.raft-tech.com/the-team/>

⁵¹ Application Narrative, page 3

⁵² <http://www.raft-tech.com/solution>

⁵³ *WLOX Broadcasting v FCC*, 260 F.2d at 714 (D.C. Cir 1958)

⁵⁴ *Cablecom General, Inc.*, 87 FCC 2d 784, 788-90, *WGPR MO&O*, 10 FCC Rcd 8140

EXHIBIT 1 - FIRST BROADCAST OBJECTION

FCC has recently liberalized the §310(b) regime for broadcasters, permitting up to 100% foreign ownership⁵⁵, by requesting declaratory ruling. As part of the order, Commission added specific rules on voting interest and capital thresholds – however, there is no indication that Commission intended to abandon the concept of “*de facto*” control – in fact, the new rules specifically state: “**Control includes actual working control in whatever manner exercised and is not limited to majority stock ownership.** [...]”⁵⁶

Given Raft’s considerable resources, history of interactions with the Commission, and well-regarded counsel, it is puzzling why Raft attempted to conceal its ownership. Regardless, if this petition is not dismissed on other grounds, the circumstances support finding question of fact, and a designation of hearing under §73.3593, based on precedents set by Commission *Entertainment Media Trust*⁵⁷, *Astroline*⁵⁸, *El Jordan*⁵⁹ and *Sinclair*⁶⁰, on the following questions:

- (a) *de facto* control of DPA
- (b) whether Raft is a real-party-in-interest to the pending application
- (c) whether DPA’s filings constitute “lack of candor”
- (d) whether DPA had reasonable basis to believe, **at the time of its application**, of truthfulness of self-certifications provided in its narrative
- (e) whether the totality of technical omissions and mistakes render DPA “technically unqualified” under 73.731(a)(4)

Further, DPA should be required to show evidence of availability of programming, financial qualifications, its ownership, and relationship with Raft, based on § 73.3613.

It should be further noted that this application is inextricably connected, and was used as justification, of an application by 3DB *0188-EX-CR-2021* (granted 04/20/2021), after the application *0152-EX-CR-2021* for renewal of call sign WI2XXG under “market trial” provisions was dismissed.

Summary:

The application appears to be filed so Raft-affiliated entities can continue engaging in data transmission services – after the “Part 5” license renewal was denied by the OET.

DPA may be able to address multiple deficiencies in its application, re-file using equipment appropriate for “International Broadcast” service, and receive a §310(b)(4) waiver despite its initial lack of candor. However, the fundamental issue will remain: **Part 73 Subpart F simply does not permit the commercial point-to-point “sideband” communications service proposed by DPA.**

⁵⁵ *Review of Foreign Ownership Policies for Broadcast, Common Carrier and Aeronautical Radio Licensees*, FCC 16-128

⁵⁶ § 1.5000(d)(3)

⁵⁷ MB Docket 19-156

⁵⁸ *Astroline Communications Company v FCC*, 87 F.2d 1556 (D.C. Cir 1988)

⁵⁹ *Ministerios El Jordan*, EB Docket 18-239, DA 18-834

⁶⁰ *Sinclair Broadcast Group, Inc. and Tribune Media Company, Applications for Transfer of Control of Tribune Media Company and Certain Subsidiaries*, WDCW, FCC 18-100, MB Docket 17-179

EXHIBIT 1 - FIRST BROADCAST OBJECTION

Objector hereby discloses commercial relationship with one of Part 5 licensees for similar services, and as such, commercial relationship with a competitor of DPA/3DB/Raft.

Respectfully submitted,

Alex Pilosov
Shortwave Solutions LLC
(917) 407-8664
alex@shortwave-solutions.com

EXHIBIT 1 - FIRST BROADCAST OBJECTION

CERTIFICATE OF SERVICE

I certify that a copy of the foregoing Informal Objection has been served upon the following via electronic means this 22nd day of April 2021 to the following party:

Trey Hanbury
Hogan Lovells US LLP
555 13th St NW
Washington DC 20004
trey.hanbury@hoganlovells.com

/s/ Alex Pilosov

Alex Pilosov

EXHIBIT 2:

DPA

BROADCAST
OPPOSITION

EXHIBIT 2 - DPA OPPOSITION

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In re Application of	)	
	)	
DPA Mac LLC	)	IBFS File No. IHF-C/P-20201228-00010
	)	
For Construction Permit to Build International	)	
High Frequency Broadcast Station	)	

To: International Bureau

OPPOSITION TO INFORMAL OBJECTION

DPA Mac LLC (“DPA Mac”) files this opposition in response to the informal objection filed by Shortwave Solutions LLC (“Shortwave”) in the above-captioned IBFS file number.¹ On December 28, 2020, DPA Mac applied for a construction permit to build an international high frequency (“IHF”) broadcast station in order to offer “a new, innovative, low-power . . . broadcasting service that supports data transmissions to foreign destinations.”² As of the date of this filing, the Commission has not placed the application on public notice.³

While it will more exhaustively address Shortwave’s concerns in the comment cycle that follows the above-captioned application’s placement on public notice,⁴ DPA Mac demonstrates

¹ See Informal Objection of Shortwave Solutions LLC, IHF-C/P-20201228-00010 (Apr. 22, 2021) (“Informal Objection”).

² Application of DPA Mac LLC for International Broadcast License, ECFS Inbox 73.702, Public Interest Statement and Waiver Request at 1 (Dec. 28, 2020) (“DPA Mac Application”); *see also* IBFS File No. IHF-C/P-20201228-00010.

³ See IBFS File No. IHF-C/P-20201228-00010 (indicating that, as of May 3, 2021, the Commission had taken no action on the application).

⁴ Out of an abundance of caution, DPA Mac files its opposition within the ten-day timeframe contemplated by Section 1.45 of the Commission’s rules because it is unclear whether Section 73.3587’s disclaimer that “[t]he limitation on pleadings and time for filing pleadings provided for in § 1.45 of the rules shall not be applicable” covers all “pleadings” or only “objections.” 47 C.F.R. § 73.3587; *see also* 47 C.F.R. § 1.45(b) (requiring that oppositions to a “request . . . be

EXHIBIT 2 - DPA OPPOSITION

below that Shortwave’s technical and legal arguments fail to cast reasonable doubt on DPA Mac’s application. Borrowing Shortwave’s own phrase, the objection is a “poorly disguised attempt”⁵ by a competitor to delay the Commission’s processing of the application, either to foreclose competition in the “transoceanic connections” in which Shortwave specializes⁶ or require the disclosure of information regarding DPA Mac’s commercially sensitive, innovative, proprietary technology. Accordingly, the objection should be ignored.

I. DPA MAC’S APPLICATION ADDRESSES THE USE-BASED AND TECHNICAL ISSUES RAISED BY ITS INNOVATIVE TECHNOLOGY AND PROPOSED SERVICE.

In an apparent attempt to delay the processing of DPA Mac’s application, Shortwave raises several use-based and technical issues that it asserts render DPA Mac’s application defective. As shown below, DPA Mac has made a good-faith effort to resolve the issues it has identified so that it may receive a construction permit to build an IHF broadcast station and, eventually, offer its innovative, low-power international broadcast service to the public.

filed within 10 days after the original pleading”); *Wireless Telecommunications, Inc. Application for Assignment of Broadband Radio Service Licenses WLK341, WNT1856, WMH868, WMI343, and WMH308 to Vermont Telephone Company, Inc.*, Memorandum Opinion and Order, 24 FCC Rcd 3162, n. 57 (WTB 2009) (“Because we are treating Utopian’s pleadings as informal objections, the procedural deadlines contained in Section 1.45 of the Commission’s Rules do not apply.”).

⁵ Informal Objection at 1.

⁶ See Shortwave Solutions, *Why Us*, <https://www.shortwave-solutions.com/> (“Shortwave Solutions offers the fastest solution in the market, providing infrastructure for transoceanic connections.”) (last accessed May 3, 2021). Shortwave Solutions has also filed an objection to similar applications seeking authority to operate in the United Kingdom, which has been rejected.

EXHIBIT 2 - DPA OPPOSITION

A. In its application, DPA Mac sought waiver of the provision in 47 C.F.R. § 2.106 that it believes is necessary.

Shortwave's objection includes the assertion that DPA Mac did not request a waiver of Sections 2.106 (*i.e.*, the Table of Frequency Allocations) and 73.701(a) of the Commission's rules.⁷ At this stage in the application process, before DPA Mac's application has been put on public notice, such an argument is merely introduced to delay the application's processing. DPA Mac has been transparent about its effort to bring its innovative, low-power IHF broadcasting service to market, following established Commission licensing processes and seeking waiver of the provisions that DPA Mac believes are necessary. As part of this process, DPA Mac has sought waiver of footnote US136(b)(2) in the Table of Frequency Allocations.⁸

Additionally, DPA Mac fails to see how waiver of Section 73.701(a) is necessary. Section 73.701(a) simply defines "international broadcast station."⁹ As DPA Mac stated in its application, it will "broadcast timely, accurate U.S. financial news internationally from the United States to the general public located in foreign countries."¹⁰ Furthermore, DPA Mac has already demonstrated proof of concept via its affiliate, 3DB Communication Inc. ("3DB"),¹¹ showing that an off-the-shelf digital radio mondiale ("DRM")¹² radio with a "commercial off-

⁷ See Informal Objection at 1 (under Argument 1); *see also* 47 C.F.R. §§ 2.106, 73.701(a).

⁸ See DPA Mac Application, Exhibit 1, at 17-18; *see also* 47 C.F.R. § 2.106, US136(b)(2).

⁹ See 47 C.F.R. § 73.701(a).

¹⁰ DPA Mac Application, Exhibit 1, at 1.

¹¹ See, *e.g.*, Call Sign WI2XXG, ELS File No. 0188-EX-CR-2021, Exhibit 1 ("3DB successfully transmitted signals using the Digital Radio Mondiale (DRM) standard from Chicago to London."). Additional information demonstrating proof of concept is on file with the applicant.

¹² DRM is "the universal, openly standardised digital broadcasting system for all broadcasting frequencies," including shortwave radio frequencies, and results in "greener, clearer, wider, bigger, better quality & audio content." See DRM, *What is DRM*, <https://www.drm.org/what-is-drm/> (last accessed May 3, 2021).

EXHIBIT 2 - DPA OPPOSITION

the-shelf” (“COTS”) Buddipole antenna can receive and decode the transmission in London and in Frankfurt, consistent with the requirements of an international broadcast.

B. To support its allegation that DPA Mac will be unable to provide a usable service, Shortwave utilizes arbitrary technical parameters that create fundamental mistakes in its analysis.

In its informal objection, Shortwave purports to show that DPA Mac’s proposed transmitter power levels are insufficient to provide adequate service,¹³ but its analysis makes unfounded, unjustified assumptions that skew the results. For example, Shortwave runs simulations on the Voice of America Coverage Analysis Program (“VOACAP”)¹⁴ that relies on a 55 dB signal-to-noise ratio (“SNR”) and 500 watt output power.¹⁵ The assumed SNR is extremely large and the output power is extremely low – a combination that guarantees failure and is not realistic. Shortwave provides no reason for selecting these unrealistic, destined-to-fail parameters. Furthermore, Shortwave cannot run its analysis using *DPA Mac*’s technical parameters, which remain proprietary commercial information and the public disclosure of which would result in competitive harm to DPA Mac.

Shortwave also claims that “DPA’s signal can only be received by DPA in the UK, under [the] following conditions”: (1) the receiver “is a full-size Yagi antenna (50 ft across), at a mast at 65ft above ground”; (2) “DPA transmitting only the ‘sideband data’ – not DRM broadcast proposed”; and (3) “even then, only at one specific low-noise site – without which DPA cannot operate.”¹⁶ This is false. As it currently does not have a license, DPA Mac was not transmitting.

¹³ See Informal Objection at 4-7.

¹⁴ See VOACAP, VOACAP Quick Guide, <https://www.voacap.com/>.

¹⁵ See Informal Objection, Attachment 1 (“Radio Propagation and Availability Charts”).

¹⁶ Informal Objection at 5.

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Rather, its affiliate, 3dB, transmitted pursuant to its experimental license. The receptions were made with a Buddipole antenna, transmitting DRM data, as shown here:



Furthermore, as shown in Figure 5 below, DPA Mac has performed a thorough analysis demonstrating that the current transmission site is suitable for HF reception. The red and orange blocks show where the likelihood of successful reception is greater than 80% using a particular wavelength (*e.g.*, 80, 60, 40 meters) at a particular time of day (*e.g.*, 0:00, 1:00, 2:00). Given the number of red and orange blocks, the chart shows that DPA Mac will be able to provide a nearly continuous broadcast for all twelve months of the year. This showing directly contravenes Shortwave's conclusion that "there is barely a single hour of the day with > 50% probability of instantaneous SNR meeting requirements."¹⁷ As the chart makes plain, the overwhelming majority of hours have an 80% or greater probability of instantaneous SNR meeting requirements year-round.

¹⁷ *Id.* at 6 ("This basic analysis was completed here, by calculating the probability of instantaneous SNR meeting requirements for a Chicago-Paris circuit over the next 12 months. All possible ambiguities were resolved in favor of DPA – in other words, this is the best-case scenario. As it can be seen, there is barely a single hour of the day with > 50% probability of instantaneous SNR meeting requirements.").

EXHIBIT 2 - DPA OPPOSITION

Figure 5: Probability of Successful Transmissions in IHF Band

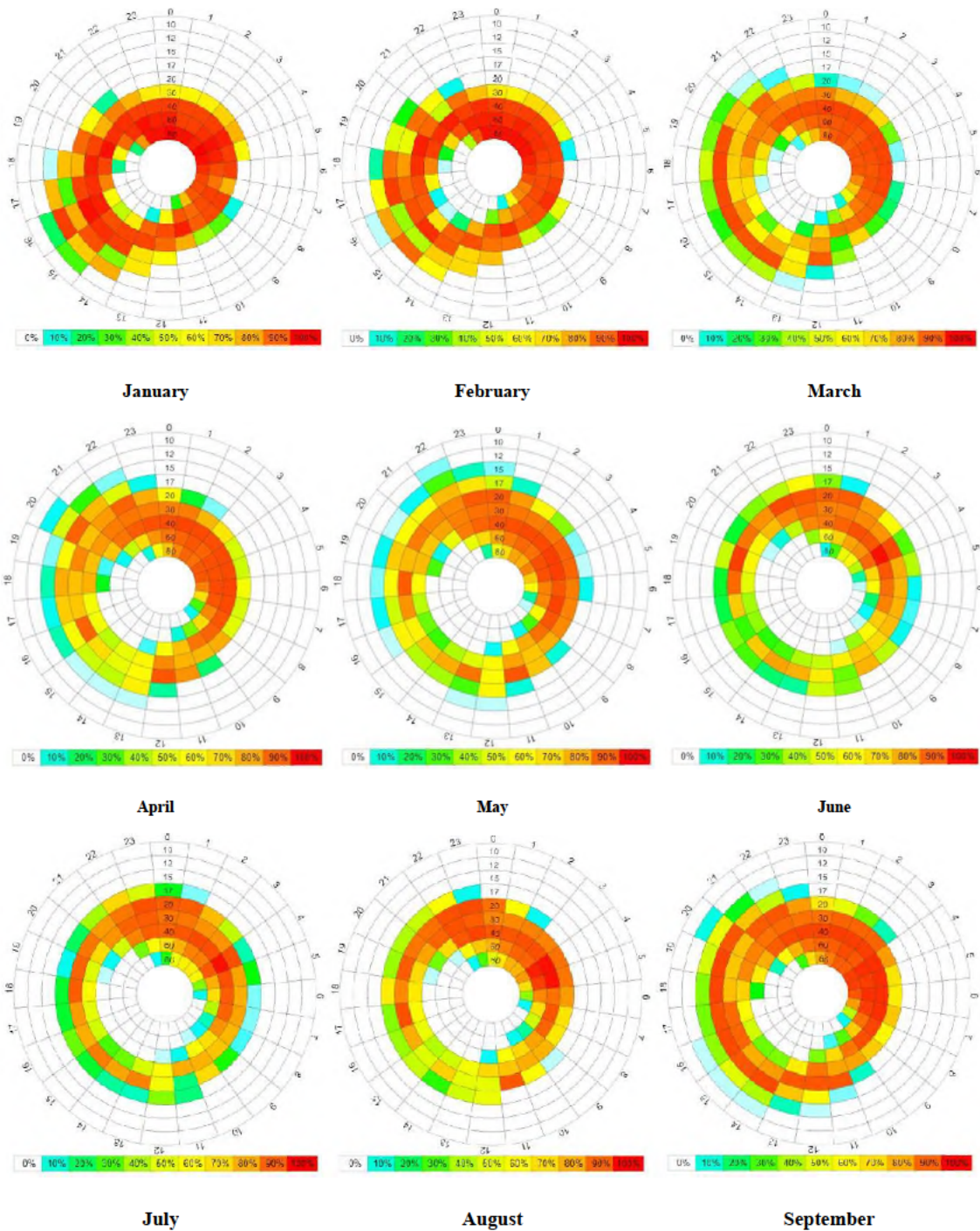
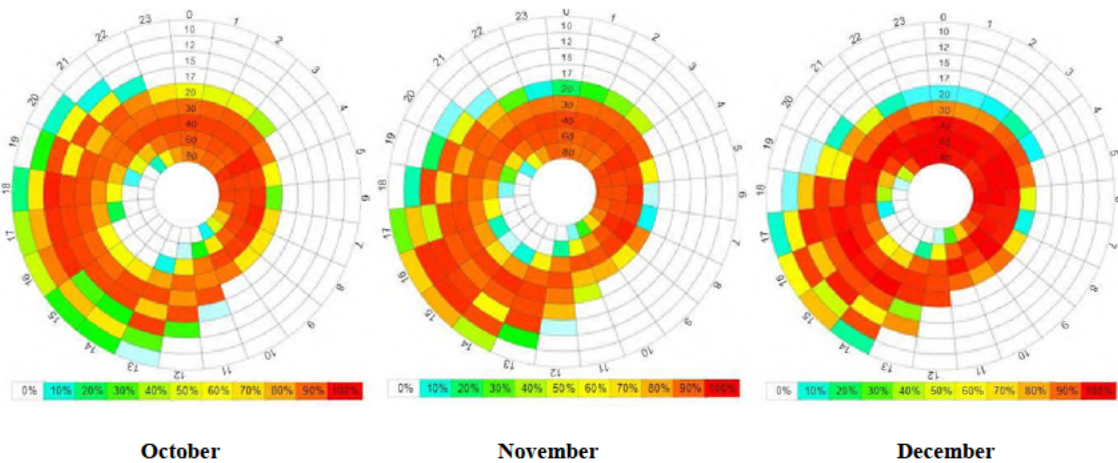


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Shortwave also asserts that DPA Mac’s signal-to-noise ratio is insufficient for standard DRM equipment, noting in particular that DPA Mac failed to include 5 dB in its calculations.¹⁸ However, Shortwave relied on an isotropic antenna featuring a gain of 0 dBi.¹⁹ Every off-the-shelf antenna – like the Buddipole – has a gain of at least 5 dBi. Finally, Shortwave attempts to evaluate the quality of the signal despite the DRM standard’s failure to define the quality of the audio. As the above information shows, Shortwave’s analysis supporting its contention that DPA Mac will be unable to provide a “usable” broadcast service is based on arbitrary assumptions that inappropriately skew the conclusions.

C. Shortwave’s contention that “[o]ther waiver requests are not in the public interest,” which deals only with Section 73.751(c), fails to acknowledge how the potential loss of service abroad is material to the Commission’s analysis.

Though a section of Shortwave’s objection is titled “Other waivers are not in [the] public interest,”²⁰ the section solely discusses DPA Mac’s request to waive Section 73.751(c)’s

¹⁸ *Id.* at 5.

¹⁹ *Id.*

²⁰ *Id.* at 8.

EXHIBIT 2 - DPA OPPOSITION

minimum power requirement.²¹ Shortwave states that the rule's minimum power requirement is not intended to protect other broadcasters from DPA Mac's signal, but rather to protect *DPA Mac* from other broadcasters' signals.²² In point of fact, every authorized broadcaster in the international high frequency service can lose service due to locally generated interference at any time. Moreover, the Commission regularly participates in international frequency coordination meetings for numerous public policy reasons, including maximizing U.S.-authorized broadcasters' access to clear channels and minimizing any potential harmful interference to or from foreign high-frequency broadcasters. Contrary to Shortwave's claims, the Commission does not pursue one objective above all others. In any case, DPA Mac's innovative lower-power technology advances each of the Commission's goals for high frequency broadcasting by maximizing use of the spectrum, minimizing potential harmful interference to other broadcasters, and ensuring DPA Mac can render service. Therefore, Shortwave's opposition to more efficient, lower power operations in the band are immaterial to the Commission's analysis of the application.

II. SHORTWAVE'S CONTENTION THAT DPA MAC'S APPLICATION VIOLATES SECTIONS 1.934(d)(1)-(2) AND 73.731(a)(4) FAILS TO ACKNOWLEDGE THE COMMISSION'S DISCRETION WHEN PROCESSING THE APPLICATION.

In addition to raising use-based and technical issues, Shortwave argues that DPA Mac's application is defective under Sections 1.934(d) and Section 73.731(a)(4) of the Commission's rules.²³ Section 1.934(d) states that "[t]he Commission *may* dismiss without prejudice an

²¹ See 47 C.F.R. § 73.751(c); *see also* DPA Mac Application, Exhibit 1, at 20 (requesting waiver of 47 C.F.R. § 73.751(c)).

²² See Informal Objection at 8 ("The problem is not interference from DPA to other broadcasters. The problem is interference to the marginal DPA signal from other broadcasters.").

²³ See *id.* at 9 (citing 47 C.F.R. §§ 1.934(d)(1)-(2)) and 7, 12 (citing 47 C.F.R. § 73.731(a)(4)).

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application that it finds to be defective.”²⁴ Meanwhile, Section 73.731(a) states that “[a] license for an international broadcasting station will be issued only after a satisfactory showing has been made.”²⁵ The provisions’ separate use of the words “may” and “satisfactory” demonstrate the Commission’s wide discretion in processing an IHF application. Currently, the Commission has not placed DPA Mac’s application on public notice, nor has DPA Mac yet sought Commission feedback on its filing. Accordingly, any suggestion that the Commission should dismiss the application at this stage is premature. Notably, even Shortwave appears to fully agree with this assessment,²⁶ undermining its own arguments on this issue.

III. DPA MAC’S INTERACTIONS WITH THE COMMISSION HAVE BEEN TRANSPARENT AND HAVE THUS NOT “LACKED CANDOR.”

A. DPA Mac did not lack candor with regards to the certifications of compliance made with respect to certain Part 73 rules.

Shortwave asserts that DPA “appears to have lacked candor in certifications of compliance”²⁷ regarding the following provisions in the Commission’s rules:

- (1) Section 73.731(a), which states that a license “will be issued only after a satisfactory showing” that the applicant satisfies several criteria;²⁸
- (2) Section 73.753, which describes the antenna requirements for international broadcasting stations;²⁹ and

²⁴ 47 C.F.R. § 1.934(d) (emphasis added).

²⁵ 47 C.F.R. § 73.731(a).

²⁶ See Informal Objection at 12 (“DPA may be able to address multiple deficiencies in its application.”).

²⁷ *Id.* at 1; see also 47 C.F.R. §§ 73.731(a), 73.753, and 73.758.

²⁸ 47 C.F.R. § 73.731(a).

²⁹ 47 C.F.R. § 73.753 (“Antenna Systems”).

EXHIBIT 2 - DPA OPPOSITION

(3) Section 73.758, which describes the system specifications for digitally modulated emissions.³⁰

Section 73.731(a) requires the Commission to make a policy-based judgment as to whether an applicant has made a “satisfactory showing.” As Shortwave acknowledges, DPA Mac has been “very clear about [its proposed service],”³¹ rendering moot questions regarding why DPA Mac applied for a license and how it would operate pursuant to the license. Meanwhile, the argument that DPA Mac failed to properly certify compliance with Sections 73.753 and 73.758 amounts to nitpicking. For example, Shortwave states that the application “lists four antennas on Form 309” but “only shows two” in supporting Exhibit 11.³² While Shortwave’s argument about candor with respect to Section 73.758 is ultimately vague, Shortwave appears to suggest that information regarding emissions designators and requested center frequencies violated the Commission’s candor requirement.³³

Simply stated, these arguments attempt to magnify the importance of perceived discrepancies in DPA Mac’s application and should therefore be easily dismissed. DPA Mac offered an exhaustive description of its system and, in any case, Shortwave fails to explain how such “violations,” even if true, would warrant return or dismissal of the application. DPA Mac has shared the information it believes is required by the FCC Form 309, including internal block diagrams and plans, and included Exhibit 1 to provide additional context for its proposed service.

³⁰ 47 C.F.R. § 73.758 (“System Specifications for Digitally Modulated Emissions in the HF Broadcasting Service”).

³¹ Informal Objection at 2.

³² *Id.* at 9.

³³ *See id.* at 1 (“DPA appears to have lacked candor in certifications of compliance with . . . § 73.758.”), 9 (describing requested emissions designators and center frequencies in arguments 4(a) and 4(b)).

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Should the Commission have questions about the application, DPA Mac would be happy to speak with staff or file supplementary material.

B. DPA Mac has not lacked candor regarding its ownership structure or issues of *de facto* control.

In its final argument, Shortwave states that DPA Mac “appears to be *indirectly* controlled by Raft Technologies – a company registered in Israel.”³⁴ Asserting an “interlocking relationship” between DPA Mac and Raft Technologies,³⁵ Shortwave states that “it is puzzling why Raft attempted to conceal its ownership.”³⁶ Ultimately, however, there is nothing puzzling about the relationship between DPA Mac and Raft Technologies. DPA Mac, a U.S.-based entity, and Raft Technologies, an Israeli corporation in good standing, have entered into arm’s length commercial agreements, including a technical and service advisory agreement, as permitted under Commission precedent.³⁷ Both parties have observed and continue to observe these commercial agreements.³⁸ Separately owned and operated, Raft Technologies has no investment interest in DPA Mac, and DPA Mac has no investment interest in Raft Technologies.

³⁴ *Id.* at 10 (emphasis in original).

³⁵ *See id.* at 10-12.

³⁶ *Id.* at 12.

³⁷ *See Application of WGPR, Inc. and CBS, Inc. for Assignment of License of WGPR-TV, Detroit, Michigan*, Memorandum Opinion and Order, 10 FCC Rcd 8140 (1995) (“The touchstone of control . . . is not divining who executes the station’s programming, personnel and finance responsibilities, but who establishes policies governing the three areas and exercises ultimate control.”).

³⁸ If Raft Technologies were to exceed the 25% benchmark for investment set out in section 310(b)(4) of the Communications Act of 1934, as amended, or were otherwise deemed to be in control of DPA Mac, it would file a petition for declaratory ruling asking the Commission to allow it to exceed the statutory benchmark.

EXHIBIT 2 - DPA OPPOSITION

IV. CONCLUSION

In its informal objection to DPA Mac's application for a construction permit, Shortwave relies on a variety of technical and legal arguments to delay the Commission's processing of the application. None of Shortwave's arguments warrant further delay. The technical arguments rely on incorrect assumptions; the legal arguments fail to raise issues that have not already been addressed or will be addressed following public notice of the application. Accordingly, DPA Mac looks forward to working with the Commission to fully resolve any questions about its application.

Respectfully Submitted,

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May 3, 2021

Counsel to DPA Mac LLC

EXHIBIT 3:

SECOND BROADCAST OBJECTION

EXHIBIT 3 - SECOND BROADCAST OBJECTION

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Application for International Broadcast	)	File No:
Construction Permit	)	IHF-C/P-20201228-00010
	)	

SECOND INFORMAL OBJECTION AND REPLY TO OPPOSITION

This second informal objection (“Second Objection”) and reply to Opposition is filed pursuant to §73.3587 of Commission Rules, by Shortwave Solutions LLC (“Petitioner”) regarding an Application for International Broadcast Construction Permit (“Application”) by DPA Mac LLC (“DPA”).

BACKGROUND AND RELATED FILINGS

Raft Technologies (“Raft”), an Israeli corporation, provides low-latency data transmission services between US and international financial centers in London, Frankfurt and Tokyo to financial industry clients^{1 2 3}.

3DB Communication Inc (“3DB”), a Delaware corporation under common “alien” ownership with Raft⁴, holds a “Part 5” License (“Experimental License”) with a callsign WI2XXG, authorizing operation in accordance with § 5.3(h) of the Commission’s Rules: “testing of equipment in connection with production or regulatory approval of such equipment”.

¹ <http://www.raft-tech.com>

² See, e.g. “Raft Technologies Speeds Trading”, available at <https://www.marketsmedia.com/raft-technologies-speeds-trading/>

³ As in First Objection, Petitioner acknowledges providing services in the same industry

⁴ Common ownership with Raft is documented in First Objection, Exhibit 2A-2C

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The Commission advised 3DB on 03/22/2019⁵, 04/04/2019⁶ and 06/24/2019⁷ that the “market trial” underlying the experimental license will not be renewed.

On 03/08/2021, 3DB filed an application for renewal, 0152-EX-CR-2021. The application was dismissed (without prejudice) on 03/10/2021: “You are advised that the Commission is unable to grant your application for the facilities requested. The application is cancelled at the request of the applicant.”⁸

On 03/26/2021, 3DB filed an application for renewal 0188-EX-CR-2021. Unlike every previous application by 3DB, the exhibit in support of this application for renewal did not contain a request for confidentiality under § 0.459(b). As justification for seeking renewal of an application that was dismissed two weeks prior, 3DB noted that its affiliate “DPA Mac” was seeking a construction permit for an International Broadcast Station under Rules Part 73 Subpart F - the “Application” in these proceedings.

Petitioner has filed an Informal Objection (“First Objection”) on 4/22/2021. DPA filed an Opposition on 5/3/2021. This Objection (“Second Objection”) is filed as a reply to the Opposition.

1) The Opposition Raises More Questions Than It Answers

In its Opposition, DPA summarily dismisses First Objection as “nitpicking”, and proclaims it is “an attempt to delay the processing of its application”. However, three months after DPA received the draft of the First Objection, DPA did not take an opportunity⁹ to correct blatant mistakes, nor submit missing exhibits, nor address the arguments on merits raised in the First Objection. Instead, DPA doubles down on all of its assertions, and proposes to address the defects *after* the Commission’s acceptance of its application.

As will be fully described below, the Opposition raises more questions about basic eligibility qualifications than it answers. DPA continues to make clearly false allegations about the Petitioner, and demonstrates lack of understanding of basic technical principles. On the question of technical viability of proposed service, DPA cursorily dismisses the parameters used in Shortwave’s simulation as “unfounded and destined to fail” - without stating any reason, or

⁵ File No 0025-EX-CM-2019, grant conditions

⁶ File No 0171-EX-CR-2019, dismissal letter of 04/04/2019

⁷ File No 0281-EX-CR-2019, grant conditions

⁸ Available at: <https://apps.fcc.gov/els/GetAtt.html?id=269229&x=>.

⁹ DPA purported to file an “Amended Application”, visible (without any contents) on MyIBFS as File No: IHF-C/P-20201228-00011 (showing filed date of 12/28/2020, and “Status Date” of 04/28/2021). It is unclear when, or under what authority the purported “amendment” was filed. FCC staff has confirmed that this filing was accepted in error.

EXHIBIT 3 - SECOND BROADCAST OBJECTION

supplying alternatives. The proffered “propagation charts” and pictures of “signal reception” are meaningless, as they lack any technical details other than description of “receive antenna” that is clearly inappropriate for evaluation. DPA maintains that the missing transmit “antenna pattern” exhibits clearly required by the Rules and Form 309 are “proprietary”. The Opposition offers a generic claim of “arm’s length commercial agreement” in response to the extensive evidence of “de facto” control by Raft Technologies. Worse yet, the Opposition describes the alien-controlled 3DB as its “affiliate” - twice.

2) DPA’s Proposed Use Does Not Constitute “Broadcasting” Per § 73.701

DPA fundamentally misunderstands that the proposed auxiliary service is simply neither permitted by Commission rules nor authorized by Commission precedent: “DPA Mac fails to see how waiver of Section 73.701(a) is necessary. Section 73.701(a) simply defines ‘international broadcast station.’”¹⁰

That citation, at least, is correct - and its definition requires that “the transmissions of which are *intended to be received directly by the general public* in foreign countries.” (emphases added). This conforms to the FCC’s authorizing statute, which defines broadcasting as “dissemination of radio communications *intended to be received by the public...*”¹¹ 47 U.S.C. § 153(7) (emphasis added).

DPA’s proposed use is clearly not a “broadcast” because DPA’s own application concedes that the proposed use is not intended for the general public, *viz.*: “low latency digital data transmissions *to private investors*”^{12 13} and “low latency digital data transmission service *to investment and commercial banks, proprietary trading companies, and security exchanges, among others*”¹⁴ (internal quotes removed, emphases added). These specialized private entities are not “the general public.”¹⁵

In addition to the statutory requirement of being intended for the general public, the Commission added three additional “indicia of broadcast” in the *Subscription Video* proceeding: (i) non-proprietary decoder, (ii) no encryption, and (iii) no contractual relationship between the

¹⁰ Opposition at 2

¹¹ FCC has allowed certain non-broadcast use of broadcast frequencies, further described below.

¹² Application Narrative at 3,5

¹³ The assertion of providing services to “private investors ...” is false. In fact, these services are provided by Raft or its affiliates, as can be seen from the diagram below, and further discussed in the “lack of candor” section of this Objection.

¹⁴ Application Narrative at 13

¹⁵ See, e.g., *Scroggin Company Bank*, 1 F.C.C. 194 (1935), *Bremer Broadcasting Co.*, 2 F.C.C. 79 (1935)

EXHIBIT 3 - SECOND BROADCAST OBJECTION

transmitter and intended recipient.¹⁶ Each of these further confirms that DPA's proposed use is not a broadcast.

As affirmed by the D.C. Circuit over 30 years ago, the FCC was well within its statutory authority to add these indicia to its methodology for determining what qualifies as a broadcast,¹⁷ and the Commission has applied the *Subscription Video* indicia in all subsequent proceedings permitting certain non-broadcast use of broadcast frequencies^{18 19 20 21 22}. Notably, for the "International Broadcast" ("Part 73 Subpart F") service at issue here, no such rule-making to permit any *non-broadcast use* has occurred, nor even been proposed.

In this case, as shown in DPA's own diagram from page 5 of its Narrative, and in a more detailed diagram²³ from Raft Technologies²⁴ shown below, the "data transmissions" are intended to be received only by the specialized equipment of DPA's so-called "affiliates"—who then will decode the signal and provide it to the end users, all of whom comprise their clients ("private investors/banks"). This is not a broadcaster transmitting, to the general public, information of interest to the general public that can be received with off-the-shelf equipment. In fact, none of that applies to DPA's proposed use.

Rather than a broadcaster transmitting to the general public, DPA's equipment will be used to transmit encoded data to its "affiliates" for reception in London, Frankfurt, and Tokyo. These "affiliates" will need to use a proprietary decoder ("Raft's IP" per the diagram below) to process the received data so that it can be forwarded to Raft's clients. Thus, even if the content *were* of interest to the general public (and it is not), DPA has taken steps to protect the transmitted content as if it were a trade secret (or otherwise confidential or proprietary) and *thus deny it to the general public*. DPA repeatedly states that all the information related to "data transmission" is "confidential and proprietary"—it surely is, but that admission voids any claims of being a "broadcast" under the *Subscription Video* indicia.

¹⁶ Report and Order, *Subscription Video*, 2 F.C.C.Rcd. 1001 (1987)

¹⁷ *National Ass'n for Better Broad. v. F.C.C.*, 849 F.2d 665 (D.C. Cir. 1988)

¹⁸ *Satellite Digital Audio (SDARS)* FCC 01-335

¹⁹ *Direct Broadcast Satellite (DBS)* FCC 18-157, FCC 06-120

²⁰ *Digital Television (DTV)* FCC 17-158

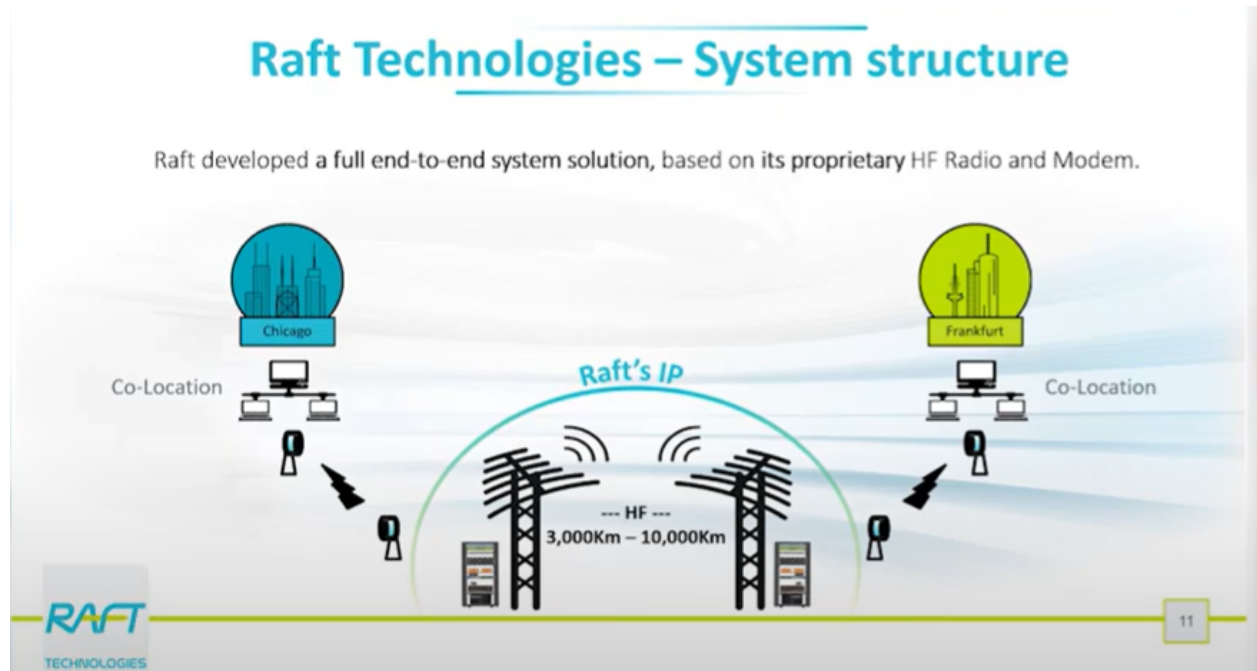
²¹ *Digital Audio Broadcasting (DAB)* FCC 07-33

²² *Multipoint Distribution Service (MDS)* FCC 98-70

²³ Haim Ben-Ami, CEO of Raft Technologies, at Trading Show NYC, 9/25/2019, archived at <https://www.youtube.com/watch?v=NXAMTsQKvwU&t=587>

²⁴ Relationships between DPA, Raft, and 3DB are extensively detailed in First Objection at 10, 11.

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Furthermore, Raft services are between specific fixed points: As explicitly stated by the CEO of Raft, “we sell service from colocation to colocation. Our customers simply connect to our switch.”²⁵ This is the exact opposite of broadcast as it is the literal definition of “private carrier”²⁶ in “Fixed Service.”²⁷

The definition of “broadcasting” is well-settled, and the opposite of DPA’s proposed use in essentially every way. Proposing instead to operate by transmitting directly to the affiliates is the very opposite of the statutory definition of “broadcasting” and the FCC’s implementing regulations thereof.²⁸ Absent a request for waiver not found here, this admission of a non-broadcast service warrants at least dismissal (if not denial) without consideration of anything else in DPA’s application.

3) DPA Has Failed To Show How Its Proposed Use Would Be Technically Feasible

DPA’s application proposes “FM-quality” broadcasting while using power levels 25x less than those prescribed by § 73.751(c) as the *minimum* appropriate for international broadcast, as

²⁵ Trading Show NYC, 9/25/2019, archived at <https://www.youtube.com/watch?v=NXAMTsQKvwU&t=587>

²⁶ See, e.g., § 90.7 and § 101.3: “provide communications service to other private services on a commercial basis”

²⁷ See § 2.1(c): Fixed Service: A radiocommunication service between specified fixed points.

²⁸ *Nat’l Ass’n for Better Broadcasting v. FCC*, 849 F.2d 665, 668-69 (D.C. Cir. 1988)

EXHIBIT 3 - SECOND BROADCAST OBJECTION

identified by multiple international broadcasters.²⁹ DPA's proposal thus makes an extraordinary claim, which would indeed revolutionize broadcasting if it were true. But it isn't, as it cannot possibly be. DRM broadcasting protocol is standardized; for standards-compliant broadcaster the only things that will affect propagation are amplifier power and transmit antenna patterns—just as would be the case for an analog broadcast, there is no “proprietary” technology that DPA could use to substitute for grossly inadequate power: DPA's proposed amplifier power is 25x less than the regulatory requirement, and DPA refuses to provide required engineering data (including antenna patterns) for the commercially-available antenna it proposes to use. What is missing is how (or even if) this underpowered system with its undisclosed antenna would actually work at a mere 4% of the minimum required broadcast power.

Shortwave identified these technical deficiencies in its First Objection. DPA's Opposition does not offer an adequate response to these concerns, seeking instead to handwave them away when it bears the burden of proof:

In its informal objection, Shortwave purports to show that DPA Mac's proposed transmitter power levels are insufficient to provide adequate service, but its analysis makes unfounded, unjustified assumptions that skew the results. For example, Shortwave runs simulations on the Voice of America Coverage Analysis Program (“VOACAP”) that relies on a 55 dB signal-to-noise ratio (“SNR”) and 500 watt output power. The assumed SNR is extremely large and the output power is extremely low – a combination that guarantees failure and is not realistic. Shortwave provides no reason for selecting these unrealistic, destined-to-fail parameters.³⁰

Shortwave's First Objection³¹ explains in great detail the selection of parameters used in its simulations, which demonstrate that DPA's proposed “broadcast” cannot function as claimed based on the information it provides. In fact, Shortwave has bent over backwards to charitably interpret DPA's proposal, presuming minimal “rural” man-made atmospheric noise levels,³² and even extending the benefit of the doubt for antenna patterns by using their maximum published value³³ despite DPA having neglected to provide the required exhibit. Further, in Attachment 1 to the First Objection, Shortwave has provided exhaustive details for *every* parameter used in its simulation (coordinates of transmit/receive sites, power levels, required SNR in dB/Hz, and

²⁹ See, e.g., ET Docket No. 04-139, comments of *National Association of Shortwave Broadcasters* at 4 and *International Broadcasting Bureau* at 2

³⁰ Opposition at 4

³¹ First Objection, at 6-7

³² In the target area, only 15-23% of the population live in rural areas. See, e.g. *World Bank, Rural Population (% of Total Population) - European Union*, available at <https://data.worldbank.org/indicator/SP.RUR.TOTL.ZS?locations=EU>

³³ Actual antenna gain decreases at lower frequencies, and at low elevation angles. See *ITU-R Rec BS.705-1 (1995)*

EXHIBIT 3 - SECOND BROADCAST OBJECTION

expected atmospheric noise), and thus its analysis can easily be duplicated and validated. By contrast, DPA makes cursory efforts to handwave and question the simulation as “unrealistic, destined-to-fail,” when DPA bears the burden of proof, by preponderance of evidence, of showing the parameters used in its “*innovative low-power broadcast*” will satisfy “public interest, convenience, and necessity.” Merely disputing Shortwave’s analysis in general terms, without even trying to rebut it, cannot carry that burden.

To the extent necessary to explain the derivation of the parameters of Shortwave’s simulation that were questioned by DPA, these are addressed explicitly below:

- Shortwave’s First Objection directly explains the 55 dB/Hz SNR requirement: 14.6dB is the *absolute minimum* channel SNR for long-haul HF propagation channels. As noted in First Objection’s n. 16, this requirement is specified by *ITU-R Rec BS.1615-2 (12/2020), Appendix 2 to Annex 1, page 9, Table 10, “HF propagation”, “Channel Mode 5”*.

As the channel is 10 kHz (or 40 dB*Hz) wide, the *SNR per Hertz* equivalent is 54.6 dB/Hz, essentially matching the 55 dB/Hz used in Shortwave’s VOACAP simulations.

Notably, “VOACAP HFBC” uses an *even higher* SNR for DRM broadcast: 60 dB/Hz

- Similarly, the 500W power used for the simulation is derived in the First Objection. The amplifier power of 2000W proposed by DPA is the “peak envelope power”. DRM modulation has “peak-to-average” power ratio (PAPR, or the “crest factor”) of 10dB³⁴ (10:1), which, using state-of-the-art techniques (not claimed by DPA, but credited in Shortwave’s simulation to give the benefit of doubt to DPA), can be reduced to 6dB (4:1).

But rather than actually engage with the technical concerns that were demonstrated in exhaustive detail, the purported simulation graphs submitted on pages 8-9 of DPA’s Opposition are facially deficient in the required technical details and thus woefully inadequate to rebut Shortwave’s simulation. They are simply lacking key pieces of data needed to confirm their accuracy, containing absolutely no information about locations, power levels or antennas used, SNR requirements, etc.³⁵ This is not even sufficient proof of ability to broadcast anything, let alone the extraordinary proof required for these extraordinary claims of “FM-quality” broadcast using power level 4% that of the minimum required for *any* broadcast.

³⁴ “The value of 10 dB is a result of the crest factor, which is a DRM system parameter.”, ITU-R Rec. BS.1514-2 (2011/03), page 26

³⁵ The only reference data shown by DPA on charts is the “wavelength” (between 10 and 80 meters) - and the supplied charts include propagation at wavelengths of 10m, 12m, 15m (three outer rings) and 60m and 80m (two inner rings) - which do not correspond to requested broadcast bands.

EXHIBIT 3 - SECOND BROADCAST OBJECTION

The pictures provided by DPA purporting to depict an actual reception of signal³⁶ cannot be credited—the proffered evidence of two-bar signal strength at one location at one point in time is not evidence of usable coverage even at that specific location, much less at the entire target area. DPA does not identify the location of the test,³⁷ nor whether 64-QAM modulation was used (required for the claimed “FM-quality”). Moreover, DPA admits to using a “Buddipole” antenna - which is not the “whip” antenna prescribed for propagation planning purposes.

DPA claims that “Shortwave provides no reason for selecting these unrealistic, destined-to-fail parameters.” In fact, the *very parameters* questioned by DPA do match (or are more favorable to DPA than) the *default settings* for “VOACAP Online for HF Broadcasting” (Voacap OHFBC),³⁸ an online application related to “VOACAP Online” that DPA used to provide charts on pages 6-7 of its Response to the First Opposition. For example, VOACAP OHFBC uses following settings by default:

- Minimum SNR of 60 dB/Hz for DRM (above 55 dB/Hz used in Shortwave’s simulations)
- Use of “SWWHIP.VOA” as a reference receiver antenna

It is inconceivable that DPA was unaware of “VOACAP OHFBC”, featured on the VOACAP Online webpage, while using VOACAP Online to prepare its reply.

It appears that either DPA lacks technical knowledge necessary to operate this broadcast station, or lacked reasonable basis in believing its material statements are correct.

4) The Reference Receive Antenna For Broadcast Planning Purposes Is Prescribed By International Standards And Treaties

DPA states in its Opposition: “Shortwave relied on an isotropic antenna featuring a gain of 0 dBi. Every off-the-shelf antenna – like the Buddipole – has a gain of at least 5 dBi.”³⁹ This claim is false, and betrays the lack of even “amateur-level” knowledge of shortwave antenna characteristics.

The First Objection’s Exhibit 2 clearly shows that the calculations were performed using “SWWHIP.VOA” antenna (“shortwave whip”)—which is not an “isotropic antenna.” The “whip”

³⁶ Opposition at 5

³⁷ As noted in First Objection (at page 4 and in Exhibit 3), in its own words, DPA uses an “extraordinarily low-noise” site in the UK for reception of its point-to-point signal - such site cannot be representative of an average broadcast listener location.

³⁸ <https://www.voacap.com/hfbc/>, linked directly on <http://www.voacap.com>

³⁹ Opposition at 7

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is the antenna prescribed by ITU-R Rec. BS.705-1⁴⁰ for evaluation of broadcasting in HF bands. Not only BS.705 is an ITU-R recommendation, unlike other recommendations, its use is explicitly prescribed by *eight* consecutive WRC Resolutions 535,⁴¹ viz., “Information needed for the application of Article S12^[42] of the Radio Regulations.” These are not merely suggestions for best practices, as are certain other ITU-R recommendations. Rather, WRC Resolution 535 and, by reference, BS.705, are effectively mandates governing international planning & coordination of Broadcasting Service; they constitute “Final Acts” of WRC, and having been duly ratified by the Senate, have “international treaty” status.

Furthermore, the shortwave whip is the antenna used as the reference receiving antenna for broadcasting performance evaluation in NTIA “Best Practices” handbook “*Antenna Models For Electromagnetic Compatibility Analyses*”⁴³: “For system planning and antenna performance evaluation of the HF AM audio systems, the recommended receiving antenna reference radiation pattern [is] in Rec. ITU-R BS.705-1.” Thus, as DPA had to be aware, the shortwave whip is the only receive antenna appropriate for “propagation planning.” Yet it did not utilize a shortwave whip in its own performance evaluation.

DPA claimed that: “Every off-the-shelf antenna – like the Buddipole – has a gain of at least 5 dBi.” This is clearly wrong as a technical matter, as the gain of the above-mentioned “shortwave whip” reference antenna is actually 0 dBi.^{44 45} Also, as can be clearly seen from the Buddipole-authorized field guide, the Buddipole antenna’s gain is actually below the claimed 5 dBi for multiple configurations.⁴⁶

Further, DPA fundamentally misunderstands the distinction between “antenna gain” and “antenna pattern”: the “gain” is just a single data point of the whole picture: it describes the peak point of the antenna pattern. For propagation planning purposes, it is important to know the full pattern, particularly *elevation*—indeed, that is the entire reason for the existence of the BS.705 standard — as actual gain is determined not by the “peak” of the pattern, but by the point corresponding to the “takeoff angle” (or, “elevation”) and azimuth. The “takeoff angle” depends mainly the length of the path. For ionospheric paths over 4000 miles, such as, for proposed transmission from Chicago to Europe, the “takeoff angles” are very low: for transmission from

⁴⁰ Annex 2, “HF transmitting and receiving antenna characteristics and diagrams”, ITU-R Rec BS.705-1 (1995), available at: https://www.itu.int/dms_pubrec/itu-r/rec/bs/R-REC-BS.705-1-199510-!//PDF-E.pdf

⁴¹ WRC-97, WRC-00, WRC-03, WRC-07, WRC-12, WRC-15, WRC-15, WRC-19.

⁴² “Seasonal Planning of the HF Bands Allocated to the Broadcasting Service Between 5900 kHz and 26100 kHz”, Article 12, ITU-R Radio Regulations

⁴³ Section 5.4.1.2 “*Antenna Models For Electromagnetic Compatibility Analyses*”, NTIA TM-13-489, available at: https://www.ntia.doc.gov/files/ntia/publications/antenna_models_report_tm-13-489.pdf

⁴⁴ ITU-R Rec. BS.705-1, Annex 2

⁴⁵ 5 dBi minimum gain is only applicable to an antenna of certain minimum dimensions, at a certain minimum height, tuned to a specific frequency. This is not the case for HF receiving antennas.

⁴⁶ B. Scott Andersen, “Buddipole in the field”, available at <https://lib.store.yahoo.net/lib/buddipole/buddipoleinthefield2.pdf> at 57-71

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Chicago to Europe, the takeoff angles vary between 3 and 17 degrees, with the median at 7 degrees.⁴⁷ At this median takeoff angle, the reference BS.705-1 *and* the proffered Buddipole⁴⁸ have gain of *negative* 4 dBi^{49 50} or less.

DPA states: “Shortwave attempts to evaluate the quality of the signal despite the DRM standard’s failure to define the quality of the audio.”⁵¹ This, too, is incorrect. The DRM standards do describe in exhaustive detail the necessary modulation parameters and SNR required to reach various levels of “audio quality,” for example:

- The DRM system includes a number of digital modulation modes to enable the transmission operator to select a mode with a degree of robustness best suited to the expected propagation.⁵²
- To achieve a sufficiently high quality of service for a DRM digital audio service, a BER of about 1E-4 is needed.⁵³
- Comparison of DRM30 coverage and quality with a representative AM transmission, having a daytime service area of 75 to 90 km (specified SNR = 26 dB and 30% modulation), shows that DRM30 transmissions running at half the power of the AM transmission typically can deliver subjective audio quality matching “VHF FM stereo” over an area ~4 times larger than in the AM mode (distances of 120 to 180 km) using the 64QAM(3) mode or quality close to VHF FM over an area ~9 times larger (distances of 220 to 260 km) using the 64QAM(0) mode.⁵⁴

The blatantly incorrect technical claims of minimal antenna gain, the use of clearly inappropriate reference “receiver antenna”, and lack of understanding of the International standards suggest that DPA is not technically qualified to operate an International Broadcast station.

5) DPA’s Failure To Provide The Required Transmitting Antenna Patterns Warrants At Least Dismissal

⁴⁷ See, e.g. *American Radio Relay League, “Antenna Heights and Communications Effectiveness”* (1999), available at <https://www.arrl.org/files/file/antplnr.pdf> at 9-11

⁴⁸ Buddipole gain at frequencies of 14 Mhz and below, see “*Buddipole in the field*”, *supra*.

⁴⁹ *ITU-R Rec. BS.705-1*, Figure 90

⁵⁰ Same negative gain figures apply to the Buddipole antenna used by DPA. See “*Buddipole in the Field*”, *supra*.

⁵¹ Opposition at 7

⁵² *BS.1514-2* at 26

⁵³ *BS.1615-1* at 3

⁵⁴ *BS.2384-0* at 18

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DPA states: “Furthermore, Shortwave cannot run its analysis using DPA Mac’s technical parameters, which remain proprietary commercial information and the public disclosure of which would result in competitive harm to DPA Mac.”

Again, DPA is incorrect: the only technical parameter that is necessary for analysis is the transmit antenna radiation patterns. As explained *supra*, the antenna patterns are *critical* to evaluation of HF propagation over long paths. These patterns are a required exhibit of Form 309 (Section V, Box 7(b): “applicants for international broadcasting stations should submit all pertinent data regarding antenna characteristics in accordance with the requirements of the International Telecommunications Union’s Radio Regulations” and Box 7(d), requiring “complete engineering data”). Moreover, to perform international coordination, antenna patterns are *required* to be public, by WRC Resolutions 535 “Information needed for the application of Article S12 of the Radio Regulations”, as described above.

This required information is missing from DPA’s application, and thus warrants at least dismissal.

6) The Proposed Low-Power Service Will Not Provide “Public Utility And Convenience,” And Data Transmission Cannot Satisfy This Burden

DPA states: “Shortwave’s contention ... fails to acknowledge how the potential loss of service abroad is material to the Commission’s analysis.”⁵⁵ This is a puzzling claim, particularly when it is DPA who bears the burden of proof, by preponderance of evidence, that “the public interest, convenience and necessity will be served through the operation of the proposed station.”⁵⁶

If, during international coordination, DPA’s signal is not protected because its signal strength is too low to qualify for protection, thereby resulting in loss of advice abroad, that would certainly be material to “public utility and convenience.” Alternatively, if FCC staff were to insist on protection of inadequate DPA signal during international coordination, and force other broadcasters not to use that frequency, it would defeat the “maximizing use of spectrum” argument offered by DPA.

DPA cannot simultaneously argue the required “public utility and convenience” and “maximizing use of spectrum,” because the two arguments contradict each other.

Extraordinary claims of “low-power FM-quality broadcast” require extraordinary evidence. But none was provided. DPA mentions that its “low-power” service is “innovative” seven times in

⁵⁵ Opposition at 7-8

⁵⁶ Application Narrative at 2, 14

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its narrative, and six times in its opposition brief. The quantity of this claim cannot make up for its lack of quality; repetition of this talisman does not make it true.

To be clear, the proposed auxiliary “low-latency data transmission” use is a *point-to-point* service by DPA’s own admission, and so there can be no *broadcast* “innovation” created. For broadcast services where Commission permitted non-broadcast “auxiliary” or “subsidiary” transmissions, it had stated that such transmissions cannot satisfy any “public interest” obligations, *e.g.*, §73.127 and § 73.295 both explicitly provide: “The permittee or licensee must establish that the broadcast operation is in the public interest wholly apart from the subsidiary communications services provided.” DPA has failed to establish any public interest in any broadcast operation.

DPA repeatedly claims that its “low power” service minimizes “harmful interference”⁵⁷. However, it provides no evidence whatsoever other than “3DB’s operations pursuant to its experimental license have received no complaints of harmful Interference”. This is clearly insufficient: *absence of evidence* of interference is not *evidence of absence* of interference. Furthermore, 3DB did not operate in “broadcast” bands. In the “fixed” bands, all other “experimental” and almost all “land mobile” licensees do operate on “secondary”, “non-interference” basis, and thus could not complain about possible “interference”. The interference caused would be mainly felt in other countries and nearly impossible to identify and communicate to 3DB as a “complaint” - due to the lack of the “callsign” in 3DB’s transmissions, worldwide propagation and complexity of HF “direction-finding”. Aforementioned ITU-R broadcasting regulations discuss in great detail the proper procedures for technical analysis to quantify possible interference, and 3DB failed to provide *any* evidence required to carry its burden of proof.

7) The Requested Bandwidth And Modulation Are “Patently Not In Accordance” With § 73.758 And With International Radio Regulation Treaties

As noted in First Objection, DPA requested 58 kHz bandwidth for its transmission,⁵⁸ far more than the 10 kHz bandwidth authorized for DRM broadcasting by § 73.758.⁵⁹ This is explained by DPA’s plan to use spectrum adjacent to its frequency assignment for transmission of data using a proprietary modulation: “DPA Mac intends to provide ... investment data from points within the United States to locations outside the United States **carried over a channel immediately adjacent to the HF broadcasts**.”⁶⁰ (emphasis added).

⁵⁷ Application Narrative at 13, 17-20. Opposition at 8

⁵⁸ Form 309, Section V, Box 2. Repeated in Application Narrative at 1

⁵⁹ DPA did not request a waiver of § 73.758

⁶⁰ Application Narrative at 3

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It appears that DPA's request for 58 kHz bandwidth is composed of 10 kHz necessary for the DRM broadcast, plus 48 kHz more for the data.

This "adjacent channel data transmission" is patently not in accordance with § 73.758, nor with international treaties governing broadcasting. Quite plainly, the Commission only authorizes 10 kHz bandwidth and only permits DRM-modulated transmissions. Similarly, the relevant ITU treaties do not permit proprietary modulations in broadcasting bands: "Other modulation techniques recommended by ITU-R shall be permitted in place of double-sideband or single-sideband emissions."⁶¹ There is no evidence that ITU-R has recommended such "adjacent channel data transmission".

8) DPA Lacked Candor In Falsely Certifying Compliance With Modulation And Bandwidth Requirements Of § 73.758

DPA addresses this apparent violation of § 73.758 as follows:⁶²

"Meanwhile, the argument that DPA Mac failed to properly certify compliance with Sections 73.753 and 73.758 amounts to nitpicking.... The Shortwave's [*sic.*] argument about candor with respect to Section 73.758 is ultimately vague, Shortwave appears to suggest that information regarding emissions designators and requested center frequencies violated the Commission's candor requirement.

Notably, in its Opposition, DPA neither denies nor takes an opportunity to correct the request for 58 kHz bandwidth.

In its application, DPA explicitly certified its compliance with § 73.758 (footnotes removed, emphasis added):

Its spacing for digitally modulated emissions in the applicable frequencies will be 10 kHz, satisfying Section 73.758(b)(1). Its digitally modulated emissions **will share the same spectrum**, in accordance with the permission granted by Section 73.758(b)(2). For its over-the-air audio broadcast, DPA Mac's full, digitally modulated emission will have a 10 kHz bandwidth, with center frequency at one of the 5 kHz center frequencies, satisfying Section 73.758(c)(1).

Pointing out that DPA has not requested a waiver and falsely certified compliance with § 73.758 while contradicting another section of its application is not "nitpicking" nor "an ultimately vague

⁶¹ *ITU-R Radio Regulations*, Article 12.7

⁶² Opposition at 10

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argument about candor.” It is DPA’s obligation to be forthright at all times, not Shortwave’s to police DPA’s timing or raising of these troubling issues.

For avoidance of doubt, it appears that DPA falsely certified that:

- (i) it “will share the same spectrum”, contradicting its plans to use adjacent channel spectrum
- (ii) that its “spacing for digitally modulated emissions in the applicable frequencies will be 10 kHz”, contradicting its request for 58 kHz bandwidth.

9) The Claimed “Maximizing Use of Spectrum” Is Voided By The Excessive Bandwidth, And Requested Waiver Of § 73.702(j)

DPA claims: “DPA Mac’s innovative lower-power technology advances each of the Commission’s goals for high frequency broadcasting by maximizing use of the spectrum, minimizing potential harmful interference to other broadcasters, and ensuring DPA Mac can render service”⁶³ and “DPA Mac’s innovative, functionally integrated service can operate efficiently at low power in small amounts spectrum [sic] allocated to IHF broadcasting.”⁶⁴

DPA requests waiver of § 73.702(j)⁶⁵:

At the same time, DPA Mac’s lower power transmissions are more susceptible to disruption from atmospheric changes and other source of interference than traditional high-power transmissions are [sic]. To overcome these challenges without raising power, DPA Mac may need to use more than one frequency at any given time to maintain a continuous, uninterrupted connection to listeners.

Indeed, the Commission aims to maximize use of spectrum, and the amount of spectrum allocated to IHF broadcasting is limited. However, DPA’s proposed use is highly inefficient: DPA’s request for 58 kHz bandwidth is nearly *six* times higher than authorized by § 73.758.

Such use would consume a large fraction of *worldwide* spectrum allocated to broadcasting by ITU. DPA requested a total of 464 kHz⁶⁶ out of 4090 kHz allocated by ITU *worldwide* to broadcasting.⁶⁷ To allow a single broadcaster to use over 10% of *worldwide* HFBC broadcasting spectrum is the exact opposite of “maximizing use of spectrum” claimed as a rationale for DPA’s

⁶³ Opposition at 8

⁶⁴ Application Narrative at 19

⁶⁵ Application Narrative at 19

⁶⁶ Application Narrative at 13

⁶⁷ See, e.g. <https://www.itu.int/en/ITU-R/terrestrial/broadcast/Pages/Bands.aspx>

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application. In fact, in the 7 MHz broadcasting band, DPA's request of 58 kHz constitutes 58% of *total* available spectrum for broadcasting allocated by ITU to Region 2 (The Americas).⁶⁸

The requested waivers of § 73.702(j) and § 73.702(m) to use “more than one frequency at any given time,” if granted, would mean that DPA would use *at least* 116 kHz of spectrum. That is, each hour of operation by DPA would consume 12 of the 10 kHz “frequency-hours” contemplated by the Commission's rules, which also limit total use by *all* IHF broadcasters to 100 “frequency-hours” per day.⁶⁹ Therefore, operation by DPA for even 9 hours daily would consume all of the “frequency-hours” made available by the Commission, leaving none for any other broadcaster. This cannot be seen as being in the “public interest”.

10) DPA's Application Is Not “Substantially Complete”

The First Objection⁷⁰ noted the deficiency of DPA's missing antenna patterns, and an incorrect list of “all known radio stations” required by Form 309, Section V, Box 4.2.

The Commission does indeed distinguish “minor defects as to completeness”⁷¹ from “major defects” requiring dismissal. DPA ignores that broadcast applications must still be “substantially complete”, and defines “minor defect” as “which does not render the application unacceptable for filing because it is not essential to the processing of the application.”⁷²

In the instant case, the missing antenna patterns are absolutely essential to processing of the application - as discussed above, they are required for international coordination, and to demonstrate international coverage provided to justify “public convenience and necessity.” As such, their omission cannot be mere “minor defects” because without them, DPA's application is not “substantially complete.”

DPA argues:⁷³

Meanwhile, the argument that DPA Mac failed to properly certify compliance with Sections 73.753 and 73.758 amounts to nitpicking. For example, Shortwave

⁶⁸ DPA repeatedly notes its request for a waiver of § 2.106 footnote US136(b)(2) to use 7.3-7.4 Mhz band. This waiver is unnecessary, as the entirety of this band is already allocated to Broadcast Service. DPA misreads footnote US136, it is only applicable to non-broadcast services originally licensed prior to 2009.

⁶⁹ § 73.702(m)

⁷⁰ First Objection at 9

⁷¹ § 73.3564(a): “In the case of minor defects as to completeness, a deficiency letter will be issued and the applicant will be required to supply the missing or corrective information”

⁷² See, e.g., *Utica Telephone Company*, 5 FCC Rcd 9, DA 90-638

⁷³ Opposition at 10

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states that the application “lists four antennas on Form 309” but “only shows two” in supporting Exhibit 11

As noted above, the antenna patterns are required to process the application. Based on the face of application, it is unclear which of these two (or four) antennas DPA proposes to use for broadcasting. Instead of providing required information and correcting the “fatal defect,” DPA seeks to dismiss the notification of its facial deficiency as “nitpicking”⁷⁴.

11) The Commission Does Not Have Discretion To Accept An Application That Is “Patently Not In Accordance” With Rules, And Such Acceptance Would Be Futile

DPA argues⁷⁵ that the language of § 1.934 (“Commission may dismiss without prejudice an application that it finds to be defective”) shows that “[t]he provisions’ separate use of the words “may” and “satisfactory” demonstrate the Commission’s wide discretion in processing an IHF application.” In its footnote 26, DPA appears to argue that because Shortwave acknowledged that “*DPA may be able to address multiple deficiencies*,” the application should be accepted for filing.

While Shortwave agrees that under § 1.934, the FCC may indeed exercise its discretion and accept a defective application for filing, it is puzzling *why* the FCC should do so when doing so would be futile.

Notably, § 73.3566(a), applicable to all *broadcast* services, states [emphasis added]: “Applications which are determined to be patently not in accordance with the FCC rules, regulations, or other requirements, unless accompanied by an appropriate request for waiver, **will** be considered defective and **will not** be accepted for filing or if inadvertently accepted for filing **will be** dismissed. Requests for waiver **shall** show the nature of the waiver or exception desired and **shall** set forth the reasons in support thereof.” Applying DPA’s own argument, the use of words “will,” “will not,” and “shall” demonstrate lack of discretion for acceptance of applications for *broadcast* services that are “patently not in accordance” with the Rules.

As noted *supra*, the Application is “patently not in accordance” with the Rules:

- i) The proposed “point-to-point” auxiliary use is not authorized under “Subpart F”
- ii) The requested 58 kHz bandwidth and modulation is not authorized

DPA states that it would “more exhaustively address Shortwave’s concerns in the comment cycle”⁷⁶ and “Should the Commission have questions about the application, DPA Mac would be happy to speak with staff or file supplementary material” post-acceptance, but provides no

⁷⁴ Noting DPA’s lack of compliance with the “public notice” provisions of § 73.3580(c)(1)(ii), on the other hand, *would* be nitpicking.

⁷⁵ Opposition at 8-9

⁷⁶ Opposition at 1

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reason or authority to delay addressing the concerns about the deficiencies in its application. Notably, three months after DPA first received the draft of the First Objection⁷⁷, DPA chose not to supplement the application.

12) DPA Makes Clearly False Statements In Its Response, Lacking Reasonable Basis

Puzzlingly, DPA continues to make clearly false statements. DPA stated: “*Shortwave Solutions has also filed an objection to similar applications seeking authority to operate in the United Kingdom, **which has been rejected.***”⁷⁸ (emphasis added). This is simply and demonstrably untrue, as is clear from the online status of said application, directly linked in the First Objection. To put this matter to rest, Shortwave requested a comment from the planning officer, which unambiguously states “*For the avoidance of doubt, your objection **has not been rejected.***” (emphasis in original). That email correspondence is included as Exhibit 1.

It is unclear why DPA included this facially false argument in its Opposition without having undertaken the straightforward step to verify it beforehand. Most certainly, DPA could not have had reasonable basis to make that argument, in apparent violation of § 1.17(a)(2).

13) DPA Does Not Address The “Indirect Control” And “Real Party-in-Interest”⁷⁹ Issue

In the First Objection, Shortwave alleged *indirect* control of DPA by Raft Technologies in violation of 47 U.S.C. 310(b), supported by extensive evidence, by Raft (and its affiliates’) public filings, as well as Raft’s own website and public statements of Raft executives.⁸⁰

DPA’s sole response is (footnotes removed):

DPA Mac, a U.S.-based entity, and Raft Technologies, an Israeli corporation in good standing, have entered into arm’s length commercial agreements, including a technical and service advisory agreement, as permitted under Commission precedent. Both parties have observed and continue to observe these commercial agreements. Separately owned and operated, Raft Technologies has no investment

⁷⁷ Petitioner provided DPA with the draft of First Objection on 4/17/2021

⁷⁸ Opposition, n. 6

⁷⁹ The Commission stated: “The phrase “real party-in-interest” is used in connection with pending applications, while “de facto control” is used in connection with a licensed station. In either case, the pertinent concern is whether someone other than the named applicant or licensee is in control.” *In Re Brasher*, 15 FCC Rcd 16326 (2000).

⁸⁰ First Objection at 10-12

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interest in DPA Mac, and DPA Mac has no investment interest in Raft Technologies.⁸¹

But DPA's statement addresses only issues of *direct* control that Shortwave did not raise; it is non-responsive to, and fails to rebut, the issues raised in the First Opposition concerning foreign "indirect control."

In response to the First Objection, DPA has failed to identify any *possible* source of broadcasting or transmission revenue other than Raft.⁸² DPA did not dispute that 3DB is alien-controlled. DPA did not refute that it is a "successor" of said alien-controlled 3DB - in fact, the Opposition *twice* refers to 3DB as an "affiliate"⁸³. DPA provides no explanation why its proposed equipment, antennas, and location are identical to those of alien-controlled 3DB.

Even beyond DPA's ineffective efforts to rebut Raft's *de facto* control, events subsequent to the filing of DPA's Opposition add further questions on the nature of their relationship. On May 17, 2021, alien-controlled⁸⁴ 3DB filed an Experimental Application⁸⁵ that listed identical location, and identical equipment to that set forth in DPA's application. Revealingly, in response to the question "Will applicant be owner and operator of the station?" 3DB answered "YES".

If, as of 5/17/2021, 3DB still owned the station and the equipment, it is unclear how DPA and Raft could have engaged in the claimed "technical and service advisory agreement" as of the filing of the Broadcast Application 6 months earlier, without either DPA *nor* Raft owning any of the equipment necessary to operate the station. It is also unclear how could DPA be "financially qualified" to operate as required by the Rules.

The constantly-shifting ownership and control of the tangible and intangible assets for the same proposed uses between clearly-related companies whose filings variously refer to each other as "affiliates" or "successors" suggests, if not a lack of candor, at least efforts to play three-card monte with the entities involved to obscure precisely who is doing what. And it is not Shortwave who must resolve these concerns, but DPA—and it has failed to do so.

14) DPA Cannot Possibly Operate Independently, And Thus Is Indirectly Controlled By "Alien" Raft/3DB

⁸¹ Opposition at 11

⁸² Indeed, as the broadcast is "commercial-free", DPA has no other sources of revenue other than "transmission services" provided by Raft, and thus is wholly financially dependent on Raft for revenue. (See Application Narrative at 1 and 13).

⁸³ Opposition at 3, 5

⁸⁴ First Objection, exhibit 2B

⁸⁵ ELS File No: 0094-EX-CM-2021

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Even assuming, *arguendo*, that despite ample evidence to the contrary above, that the arrangement between DPA and Raft is truly “arm’s length” as claimed, the *de facto* control⁸⁶ would still be present in this case.

Relationships between Licensees and third parties *traditionally* take the form of “Local Marketing Agreement” (LMA), where “licensee offers its airtime to a third party in exchange for programming and compensation. In return, the third-party programmer supplies programming and sells commercial announcements to support its bloc of programming.”⁸⁷ Whether such an agreement amounts to “de facto” control is a question that the Commission decides quite often, and the well-developed case law dates back to the 1950s.

For broadcasters⁸⁸, as correctly cited by DPA, the seminal case is *WGPR*.⁸⁹ DPA correctly cites⁹⁰:

The touchstone of control ... is not divining who executes the station’s programming, personnel and finance responsibilities, but who establishes policies governing the three areas and exercises ultimate control.

However, the Commission continues as follows (emphasis added):⁹¹

Thus, we require that licensees must maintain their own bank accounts, pay the salaries of their own employees, and remain responsible for their own obligations to programmers, utility companies, and other operational matters. **In other words, the licensee should be ready and able to operate independently from the broker at any time it believes the arrangement does not fulfill its public interest responsibilities.**

Here, DPA proposes to operate a broadcast station “commercial-free”, subsidized solely by revenue derived from the ancillary data transmission services - indeed, a very unique business model. Unfortunately, and unlike any “Local Marketing Agreement” upheld in *WGPR*, the *other* unique part of DPA’s proposal is that these services and associated revenue are inextricably tied to Raft.

⁸⁶ The Commission stated: “The phrase “real party-in-interest” is used in connection with pending applications, while “de facto control” is used in connection with a licensed station. In either case, the pertinent concern is whether someone other than the named applicant or licensee is in control. “ *In Re Brasher*, 15 FCC Rcd 16326 (2000).

⁸⁷ See *WGPR* at 8141

⁸⁸ As the actual “business” of DPA is a proposed point-to-point operation, the six-part standard of *Intermountain Microwave*, 12 FCC 2d 559 may be more appropriate. Regardless, the outcome will be the same.

⁸⁹ See *Application of WGPR, Inc. and CBS, Inc. for Assignment of License of WGPR-TV, Detroit, Michigan*, Memorandum Opinion and Order, 10 FCC Rcd 8140 (1995)

⁹⁰ Opposition, n. 37

⁹¹ See *WGPR* at 8145

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The Commission's well-settled prongs of "programming, personnel and finance" relate to *readiness* of independent operation. However, "short-term" *readiness* is subject to "long-term" *ability*. Although not yet in evidence, DPA may indeed demonstrate that it can continue to produce (or source) "commercial-free" broadcast programming—*subject to* ongoing funding from "data revenues". These revenues are supported by assets that DPA does not have: The same exact equipment (antennas and amplifiers) at the same location were claimed by 3DB as their own assets. But even if DPA was to replace this equipment, it *still* could not generate any revenue, as Raft owns the required intangible assets: the patented technology⁹² and customer relationships.

The issue here is not that 100% of DPA's revenues come from Raft, it is that their "revenues" *can only* come from Raft: DPA does not provide "low-latency services"—Raft does. Raft maintains the Network Operation Center, and controls the patented "Intellectual Property" underlying said "low-latency service."

Not being "able to operate independently" underlies the "control" here. If a licensee cannot *possibly* operate independently without a third party, it is implicitly under control of said third party—and the questions of "programming, personnel and finance" are not relevant. If Raft were to breach its agreements with DPA, or to fail commercially, DPA could not continue to maintain the claimed "public interest" justification of "low-power international high frequency (IHF) broadcasting service that supports data transmissions to foreign destinations"⁹³—unlike any "Local Marketing Agreement".

The Commission certainly can (and should) use its authority under § 73.3613 to request the "arm's length commercial agreements" executed between Raft and DPA. However, nothing in these agreements could possibly rebut the control, as *no arm's length agreement could provide sufficient distance from a Siamese twin*.

15) DPA Had A Motive To Conceal Relationship With Raft, and Lacked Candor By Concealing Such Relationship

Commission has stated that "regulatory sin embedded in [a real party in interest] issue is the failure to disclose the true 'owners,' information the Commission must have for a panoply of

⁹² Raft's financial advisor stated: "The Company uses its **patented technology** to transmit and receive signals using airwaves ..." (emphasis added), available at <https://www.rblt.com/news/rosenblatt-helps-raft-technologies-a-pioneering-low-latency-network-provider-secure-investment-to-drive-its-next-phase-of-growth>

⁹³ Application Narrative at 1

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administrative purposes; e.g., multiple ownership rules, character concerns, **alien ownership limitations**, and ultimate responsibility for overall FCC license obligations”⁹⁴ (emphasis added)

As such, it appears that DPA misled the Commission by misrepresenting or concealing the following facts material to the issue of “control”.

i) DPA falsely claimed to provide “low-latency digital transmission service to private investors, including small- and medium sized firms”.⁹⁵ In fact, DPA does not provide such services to these parties - Raft does. DPA’s only “client” is Raft - in fact, it is the only *possible* client.

ii) DPA failed to disclose that it does not own the underlying technology nor Intellectual Property, and completely depends on foreign-controlled Raft.

As discussed in the “Background” section above, 3DB was on notice that its “Experimental License” will not be renewed without an “International Broadcast” application. Both 3DB and Raft are foreign companies, precluded by § 310(b) to hold a broadcast license directly.^{96 97} In order to continue its existence, not only did Raft have a motive, but also demonstrates a *prima facie* question of fact as to *intent* to circumvent the “foreign ownership” rules: as Commission has held “a real party in interest issue, by its very nature, is a basic qualifying issue in which the element of deception is necessarily subsumed.”⁹⁸

The assets claimed by DPA currently belong to foreign companies, as shown by the evidence above: The technology, customer contracts and relationships are owned by Raft, and the physical plant is claimed by 3DB. The Commission may further find that DPA’s existence in light of the proposed relationships between DPA and 3DB/Raft lacks economic substance, i.e., *is a sham*.

⁹⁴ *Lowrey Communications, L.P., Decision*, 7 FCC Rcd 7139, 7147 (Rev. Bd. 1992) aff’d, *Memorandum Opinion and Order*, 8 FCC Rcd 6721(1993), vacated and remanded per curiam, No. 93-1690, 1994 WL 475076 (D.C. Cir. 1994).

⁹⁵ Application Narrative at 3

⁹⁶ Without a request for a waiver, or petition for declaratory ruling - neither of which were filed.

⁹⁷ The foreign control of 3DB is established in First Objection, Exhibit 2A-2C

⁹⁸ *In the Matter of Maritime Communications/ Land Mobile, LLC, Order to Show Cause, Hearing Designation Order, and Notice of Opportunity for Hearing*, 26 FCC Rcd 6520, 6534–6535 par. 36 (2011) (citing *Fenwick Island Broadcast Corp. & Leonard P. Berger, Decision*, 7 FCC Rcd 2978, 2979 (Rev. Bd. 1992))

EXHIBIT 3 - SECOND BROADCAST OBJECTION

SUMMARY

The Application and requested waivers are in violation of the following:

- i. Patently not in compliance with the Rules, in violation of § 73.3566(a), as described in Sections 2 and 7 of this Objection
- ii. Not substantially complete, in violation of § 73.3564, as described in Sections 5 and 10 of this Objection
- iii. Not in public interest, in violation of § 73.731(a)(5), as described in Sections 7 and 8 of this Objection

Furthermore, DPA as the Applicant is:

- iv. Not technically qualified, in violation of § 73.731(a)(4), as described in Sections 3 and 4 of this Objection
- v. Is indirectly controlled by a corporation organized under the laws of a foreign country, in violation of 47 U.S.C. § 310(b)(4), as described in Sections 13 and 14 of this Objection
- vi. Provided material factual information that is incorrect without a reasonable basis, in violation of § 1.17(a)(2), as described in Sections 3 and 12 of this Objection
- vii. Lacked candor by intentionally providing or omitting material factual information, in violation of § 1.17(a)(1), as described in Section 15 of this Objection

It is therefore clear that the Application cannot be accepted for filing, much less granted.

Furthermore, the *prima facie* case of “lack of candor” by DPA is established. If the Application is dismissed, Commission should use the precedent in *Sinclair*⁹⁹ to proceed with Letter of Inquiry as “material questions remain because the real party-in-interest issue in this case includes a potential element of misrepresentation or lack of candor that may suggest granting other, related applications by the same party would not be in the public interest”.

Respectfully submitted,

/s/

Alex Pilosov
Shortwave Solutions LLC
(917) 407-8664
alex@shortwave-solutions.com

⁹⁹ *Sinclair Broadcast Group, Inc., Hearing Designation Order*, 33 FCC Rcd 6840 (2018)

EXHIBIT 1



EXHIBIT 3 - SECOND BROADCAST OBJECTION

Alex Pilosov <alex@acresearchinc.com>

PL/20/0163/FA

4 messages

Alex Pilosov <alex@acresearchinc.com>

Wed, May 12, 2021 at 7:00 AM

To: "Planning Mailbox: Planning" <planning.csb@buckinghamshire.gov.uk>

Hello,

I'd like to inquire regarding the status of application PL/20/0163/FA (Erection of temporary digital data receiver mast with microwave dish and supporting shelter cabin. (Retrospective)).

I've filed an objection to this application on 19 Aug 2020. In a different legal proceeding, the applicant (Ratesu) claimed that my objection to this application has been rejected. Can you confirm the status of this application - as the Planning website shows the application still in the "Registered" state, and the application has not been decided as of yet.

Best regards,
-alex

Alex Pilosov <alex@acresearchinc.com>

Wed, May 19, 2021 at 9:09 AM

To: "Planning Mailbox: Planning" <planning.csb@buckinghamshire.gov.uk>

Hello,

I've not received a response to this email after 5 business days, and chasing this question. To clarify, two questions regarding PL/20/0163/FA:

- 1) Is this application still pending?
- 2) Was my objection (filed on 19 Aug 2020) "rejected" in any way?

Thank you!

[Quoted text hidden]

Wed, May 19, 2021 at 10:05 AM

To: alex@acresearchinc.com <alex@acresearchinc.com>

Dear Mr Pilosov,

I write with reference to the above and your e-mail below. Please accept my apologies for the delay in response. This application is still pending consideration, unfortunately in recent times we have had a high workload and delays to some applications. I am currently working through a number of such cases including this one. The application will be determined as soon as able.

For the avoidance of doubt, your objection **has not** been rejected. It is received, and the contents must be considered by the planning officer when writing the report on this application. This will remain the case even though there has been a long delay on the application process.

I trust this information is of assistance.

Yours sincerely,

Senior Planning Officer - Enforcement

Planning Growth & Sustainability Directorate

Buckinghamshire Council

planning.enforcement.csb@buckinghamshire.gov.uk

[Quoted text hidden]