

**U.S. Office of Personnel Management
Classification Appeal Decision
Under section 5112 of title 5, United States Code**

Appellant: [appellant]

Agency classification: Physicist
DB-1310-III

Organization: [branch]
[division]
[directorate]
[laboratory]
Department of the Army
[city and State]

OPM decision: Physicist
DB-1310-III

OPM decision number: C-1310-III-01

//s// Judith A. Davis

Robert D. Hendler
Classification and Pay Claims
Program Manager
Merit System Audit and Compliance

7/20/11
Date

As provided in section 511.612 of title 5, Code of Federal Regulations, this decision constitutes a certificate that is mandatory and binding on all administrative, certifying, payroll, disbursing, and accounting officials of the government. The agency is responsible for reviewing its classification decisions for identical, similar, or related positions to ensure consistency with this decision. There is no right of further appeal. This decision is subject to discretionary review only under conditions and time limits specified in the *Introduction to the Position Classification Standards*, appendix 4, section G (address provided in appendix 4, section H).

Decision sent to:

[appellant]

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Introduction

On September 17, 2009, the U.S. Office of Personnel Management (OPM) accepted a position classification appeal from [appellant], who occupies the position of Physicist, DB-1310-III, in the [branch], [division], [directorate], at the [laboratory] in [city and State]. He requested that his position be classified as Physicist, DB-1310-IV. We accepted and decided this appeal under the provisions of section 5112 of title 5, United States Code (U.S.C.)

Background

The [laboratory] operates under a demonstration project which uses a broadbanding approach to classification instead of the General Schedule (GS) grading structure. Occupations at [laboratory] are grouped into four occupational families. The appellant's position is in the Engineers and Scientists Occupational Family (pay plan DB), which encompasses all technical professional positions, including physicists. This occupational family is divided into four pay bands which cover the GS-1 through GS-15 pay range: DB-I (corresponding to GS-1 to GS-4); DB-II (GS-5 to GS-11); DB-III (GS-12 and GS-13); and DB-IV (GS-14 and GS-15).

Under the demonstration project, [laboratory] uses peer reviews to carry out the classification process. Evaluation of the scientist's credentials is made by a panel of senior scientists/engineers and personnel specialists. Corporate-level panels are convened to render final decisions on promotions from DB-III to DB-IV and are composed of the directorate directors, the Army Research Office director, and representatives from the human resources and equal employment opportunity offices. The scientist seeking promotion provides his or her input via the Contribution and Achievement of Experience (CASE), describing his or her accomplishments and explaining their significance and impact. The scientist's supervisor provides an assessment of the scientist's abilities, contributions, and impact.

Evaluation methodology

In reaching our classification decision, we have carefully reviewed all information furnished by the appellant and his agency, including his CASE package and a separate submission we requested from him specifically addressing the relevant evaluation criteria in relation to his position. In addition, we interviewed eight scientists both within and outside [laboratory] who are familiar with the appellant's research to provide additional insight into his current work and past contributions and achievements. Our decision is based on our independent review of his work but is informed by the perspectives of the scientists with whom we consulted.

Position information

The appellant conducts basic research in the area of applied optics and electromagnetic propagation, with particular emphasis in the areas of aerosol spectroscopy and infrared (IR) polarimetric imaging. In the aerosol spectroscopy area, the appellant is engaged in developing instrumentation for the real-time detection of hazardous chemical/biological airborne particles by measuring the interaction of these particles with infrared light (i.e., spectral IR absorption.) The appellant is also engaged in the development of a polarimetric imaging system capable of

capturing thermal images based solely on the polarization state of the light emitted by the object (i.e., the orientation of the oscillations of the light waves.) Although most of the development work is done by contractors under the Small Business Initiative Research (SBIR) program, the appellant oversees this process to refine and mature the technology under development and designs and conducts testing of the equipment delivered.

Series and title determination

OPM classification standards are used to determine the proper occupational series and titles of positions in the demonstration project. The appellant does not contest the title or series of his position, and it is properly classified as Physicist, DB-1310.

Pay band determination

Grading criteria for the Engineers and Scientists Occupational Family are contained in [laboratory] Memorandum ([laboratory]-M) 690-42. These criteria describe two factors for each pay band: (1) Assignment Characteristics and (2) Scientific and Technical Achievements. They are based on the concept that the research and development situation (i.e., the assignment characteristics) is expandable in breadth in accordance with the scientist's capabilities, and thus a given position may be performed at different pay band levels, depending upon the level at which the scientist is capable of working (the "person-in-the-job" concept). The first factor, Assignment Characteristics, is addressed in detail in the position description and is evaluated independent of the scientist's individual qualities. The second factor, Scientific and Technical Achievements, is evaluated by review of the scientist's CASE. If the score for the second factor does not fall within the specified range for the next higher pay band, then the first factor is considered to have not been impacted by the scientist's individual contributions and achievements and thus remains at its current level.

[Laboratory]-M 690-42 provides evaluative criteria for both factors 1 and 2. Factor 1 is evaluated by direct application of these criteria. The factor 2 criteria are supplemented by use of a structured rating system called a Behavioral Anchored Rating Scale (BARS). The BARS includes three elements: Complexity, Recognition, and Impact to Army. The "Complexity" and "Recognition" elements have rating scales ranging from 1 to 6 points, and the "Impact to Army" element has a rating scale ranging from 1 to 7 points. Each rating scale is divided into three levels or blocks with a corresponding set of rating criteria. All the criteria within each block are considered to be of approximately equal weight. The scientist must strongly meet approximately one-third of the criteria (rounded to the nearest whole number) within a block to receive the lowest score for the block, and strongly meet approximately two-thirds of the criteria (rounded to the nearest whole number) within the block to receive the highest score for the block. The total points credited under the three elements determine the pay band assignment.

Factor 1, Assignment Characteristics

This factor assesses the nature of the work assigned to the individual scientist and its relative scope, breadth, and complexity and is expressed in terms of the below narrative criteria. The pay

band assignment for this factor is based on the nature of the overall work assigned to the position.

At pay band DB-III, the work involves research, development, or systems analysis of new equipment, material, or concepts that significantly add to the understanding and usefulness of previously unexplained or untested phenomena or contribute to the solution of significant Army problems. The employee is considered to be a productive professional, providing technical advice and guidance to managers, supervisors, peers, and sponsors on various aspects of the work. In many instances, experimental data are nonexistent or controversial, requiring the incumbent to develop interpretations and procedures to extend existing knowledge/methodology. The scientist is responsible for technically defending and supporting ideas and proposals for concepts that are often controversial or novel. Technical contributions are recognized by management and peers as having significant impact on ongoing projects and reflect originality and creativity. The scientist attends and presents papers at conferences or professional society meetings, serves on technical committees within the agency, and coordinates with other professionals when working on collaborative efforts. The scientist is expected to work independently under general supervision as a mature and fully responsible employee. Assignments are received in terms of broad, general objectives with some direction provided when controversial or unusual circumstances are involved. Work is reviewed for conformance to policy, achievement of objectives, and impact on laboratory and Army programs.

At pay band DB-IV, the scientist conceives, plans, and conducts projects considered to be of primary importance in achieving new concepts, configurations, and performance characteristics and may result in establishing new theories and a deeper understanding of phenomena. Assignments involve responsibility for complete research and development programs that are frequently so broad and complex they must be sub-divided into manageable segments. The scientist has demonstrated highly significant technical achievement and leadership in a specialized field. He/she is a recognized authority whose ideas often form the basis for research and development ideas of others. In most instances, experimental data are nonexistent or controversial requiring the scientist to develop interpretations and procedures to extend or supplant existing knowledge/methodology. In addition to developing, planning, and coordinating far-reaching programs and projects, the scientist sells these proposals to high-level management officials to obtain support, interest, resources, and time, and serves as a spokesperson and/or principal investigator for the organization in the specialty field.

The assignment characteristics of the appellant's position are consistent with the DB-III criteria above. This factor speaks to the overall purpose of the position independent of the degree to which the scientist's accomplishments may have expanded the original scope of the assignment. DB-III is the level of the fully mature scientist who is expected to undertake independent projects in new areas of research and to participate in the types of activities and make the level of contributions normally associated with the productive researcher, where programmatic responsibility is confined to the scientist's individual areas of endeavor. In contrast, DB-IV represents a broader degree of organizational responsibility and authority vested in the position itself, both internally for complete research and development programs sizeable enough to be sub-divided, and externally for representing the organization, rather than the scientist's own work, within the technical field. Within this context, the assignment characteristics of the

appellant's position are depicted in his position description as those typical of "a scientist or engineer responsible for carrying out advanced research and development activities," i.e., his position is designed as that of an individual researcher typical of DB-III rather than the program leader/authority depicted at DB-IV.

Factor 2, Scientific and Technical Achievements

This factor measures the individual scientist's personal scientific and technical contributions and is expressed in terms of the below narrative criteria. These narrative criteria are supplemented by the BARS criteria, which present the same basic evaluative elements in a point-ranked format.

Pay Band DB-III:

The incumbent is a fully productive, professionally competent scientist skilled in applying a range of scientific principles, techniques, and methods in a specialty area. The scientist investigates problems of considerable complexity and finds non-obvious solutions. Results of the work make a considerable contribution in resolving Army problems; advance scientific knowledge and understanding or capability; or overcome obstacles recognized by other professionals as highly complex. An employee at this level conceives and formulates ideas or produces work of such originality, soundness and value as to have marked the scientist as a significant contributor to the field. The scientist guides and evaluates the design and development activities of contractors and others in achieving new products.

The work demands the use of complex theoretical, experimental and investigative techniques to resolve both the issues involved in the case at hand as well as to check out and account for anomalies and to reach sound scientific compromises.

The scientist has authored one or more publications of considerable interest and value to the field as evidenced by favorable reviews, citations in the work of others, presentations to professional societies, other agencies, high-level decision makers, customers, and the like; has contributed inventions, new designs, or techniques that are of material significance in the solution of important problems; is beginning to be sought out for consultation by colleagues who are themselves professionally mature scientists; and conducts briefings and presentations and deals responsibly on technical matters in the field within and outside the organization.

The peer interviews we conducted indicate the appellant's position meets pay band DB-III. As at this level, he is generally regarded as a productive and professionally competent researcher working within an area of considerable complexity. He is regarded as a significant contributor to his fields of research, although more in terms of having made incremental improvements to the technology of polarimetric imaging rather than what would be considered as major breakthroughs. He oversees contractors in the design and development of polarimetric imaging equipment, and the work demands the use of complex experimental techniques to test the capabilities and limits of the equipment. As is addressed in more detail within the context of the BARS criteria below, he has authored at least one publication that can be considered to have been of considerable interest and value to the field; has contributed several patented new

inventions and designs; is sought out by colleagues for consultation; and has conducted briefings and presentations at various technical symposia.

In general, assignment of pay band DB-III is an indication that the scientist is an asset to [laboratory], i.e., he or she is recognized for contributions to projects and is known throughout the directorate, and possibly other [laboratory] directorates, as capable and competent in a specific area of endeavor. The 10-14 point range on the BARS equates to DB-III.

Pay Band DB-IV:

The scientist has demonstrated marked technical leadership in a specialized field requiring a high degree of technical competence to gauge the extent to which the perimeters of the state-of-the art can be pushed. Accomplishments may include identification of the technological gaps that need to be bridged between imaginative and futuristic concepts and practical materials, hardware, and processes and/or the methods for closing such gaps.

The scientist is a primary author of a number of important publications, of which at least some have had a major impact on advancing the field, are accepted as definitive of important areas of it, or have otherwise been recognized as highly innovative and creative. Work results are of such significance that the scientist has received favorable reviews and numerous citations in the work of others. Contributions may include patented inventions, new designs, or techniques which are regarded as major advances in the field and which have opened the way for extensive further research and development, are of fundamental significance in advancing new technology, opened the way for achieving previously unattainable results, or solved problems of great importance to the scientific field, the Army, or the public.

The scientist is sought out to serve on special task forces and committees, perhaps on matters extending beyond the immediate specialty area. These groups develop new programs, evaluate various proposals, lay out long-range research and development plans, evaluate highly controversial issues, or investigate critical difficulties, failures, and obstacles in important and extensive programs. The scientist is sought as a consultant by other specialists (e.g., reviews articles submitted for publication at the request of journal editors or because of his/her expertise is requested to provide technical advice to other recognized scientists in their work); and receives invitations to address national professional organizations and technical symposia due to his/her recognition in the specialty field.

The peer interviews we conducted do not support crediting of the appellant's position at pay band DB-IV. As is addressed in more detail within the context of the BARS criteria below, neither his publication record nor the associated citations are consistent with the appellant demonstrating "marked technical leadership" in his field. These are normally the hallmark of the scientist who is making "major advances in the field" which are opening the way for "extensive further research and development" or "achieving previously unattainable results." Although the appellant holds a number of patents, none of these have been adopted by industry and developed into actual products; therefore, there is no demonstration that his work has had the level of practical impact and problem resolution envisioned at this level. Further, the appellant has not indicated that he has been sought out to serve on special task forces and committees for the

purposes of long-range program development or critical problem resolution beyond his immediate specialty areas, or that his stature in the field is such that he has been asked to review articles submitted to journals or other equivalent types of consultation activities.

Assignment of pay band DB-IV is an indication that the scientist is an asset to the national and possibly international scientific and military communities; i.e., the scientist is recognized by a large community external to [laboratory] for his or her contributions either in a scientific discipline or to a military system. The 15-19 point range on the BARS equates to DB-IV.

Behavioral Anchored Rating Scale (BARS)

RECOGNITION

Rating Scale: 5 or 6 points

- Consistently invited to address national professional organizations or equivalent groups within development specialty area, or otherwise recognized as a national or international expert: NOT MET

The appellant submitted a listing of six separate professional venues at which he was invited or asked to make presentations since 2004:

- NATO Advanced Study Institute on Special Detection Technique (Polarimetry) and Remote Sensing, Kiev, Ukraine (2010)
- Edgewood Chemical and Biological Center (ECBC) Technical Seminar, Maryland (2009)
- Sensors and Electron Devices Directorate (SEDD)/Sensing and Information Processing Development Workshop, [laboratory], Maryland (2006)
- National Security Space Colloquium, Applied Physics Laboratory (APL), Johns Hopkins University, Maryland (2006)
- NATO Advanced Research Workshop on Optics on Biological Particles, Novosibirsk, Russia (2005)
- 7th International Congress on Optical Particle Characterization, Kyoto, Japan (2004)

Of these six presentations, only the three in Ukraine, Russia, and Japan were invited papers, and in the case of the conference in Japan, the appellant was not the invited presenter but rather was a research collaborator on the work being presented. The remaining presentations were not invited papers within the meaning of this element; i.e., where a researcher is asked to present a paper on work that has attracted the attention of the broader scientific community in the field. The ECBC and [laboratory] events were knowledge exchanges within the local Department of the Army communities engaged in the appellant's areas of research. The Johns Hopkins event was part of a lecture series for the APL staff. The appellant also lists in his CASE nine other conferences/symposia at which he was a presenter (from 1996-2010), but these were similarly not invited papers. This reduces to only one invited paper with any degree of recency, which cannot be considered as being *consistently* invited to address national professional organizations or equivalent groups. Therefore, the appellant's invitation record does not support that he is

recognized as a “national or international expert” in his research areas, and he has provided no other information to establish that he has this standing in the scientific community.

- Recognition in the literature through favorable reviews and numerous citations or through numerous high-impact technical reports: NOT MET

The claimant has authored 12 articles in peer-reviewed journals since 1991 and provided a listing of citations of these publications at our request:

<u>Publication date/authorship</u>	<u>Citations</u>
July 2010 (second)	0
April 2010 (fourth)	3
September 2007 (primary)	1
September 2005 (primary)	2
July 2005 (primary)	2
September 2004 (primary)	1
August 2004 (primary)	6
September 2001 (primary)	12
November 1998 (primary)	4
November 1997 (primary)	0
May 1995 (primary)	11
April 1991 (third)	48

The appellant has credited authorship on one article (1991) that can be considered to have had a high impact in terms of citations. However, this article was published twenty years ago, before the appellant received his doctorate, and he was listed as third author. He has primary authorship on two other articles of significant interest (1995, 2001), but these are likewise not recent. This is a relatively limited publication record with minimal citations of the more recent articles. (This citation listing does not indicate how many of the citations were by the appellant himself or his co-authors in later articles.) A scientist at this stage of the appellant's career would normally be expected to have primary or contributing authorship of several dozen peer-reviewed articles. A more limited publication record may be counterbalanced by some of the articles being particularly "high impact," but a "high impact" article in a relatively narrow field of research with a small community of peers would be expected to have accrued at least 20-30 citations over a period of several years. The appellant's publication record is not indicative of the level of recognition implicit in this criterion.

The appellant submitted one example of what he characterized as a favorable review. This was an email sent to him by the editor of the journal *Optical Engineering*, stating that a paper he presented at the 2009 SPIE (professional society for optics and photonics) conference is “one of the most frequently downloaded papers from the SPIE Digital Library” and inviting him to submit an expanded version of the conference paper to the journal, if the work was at a stage where it might be accepted for publication. This is not considered a “favorable review” within the meaning of this criterion, as it was only an invitation to submit an article for peer review, was based not on content but on some unspecified number of downloads, and there is no indication that any such article was subsequently published.

The appellant has produced 57 technical reports to date. These were described to us as demonstrating continuing progress in the refinement of the technology involved but none were identified as “high impact.”

Based on the above considerations, the appellant has not been recognized in the literature through favorable reviews and *numerous* citations or through *numerous* high-impact technical reports sufficient for crediting under this criterion.

- Advice is sought by colleagues, as well as by management, Army and DoD leadership, or other agencies and activities: NOT MET

As support for crediting under this criterion, the claimant provided the following "examples of requested membership for topical review":

- SPIE conference chairperson (2010)
- "Member and senior topic reviewer" for the U.S. Army Corps of Engineers Research and Development Center (ERDC) basic research proposal center
- Advisory board member for the Defense Advanced Research Projects Agency (DARPA) in reference to proposals dealing with polarimetric imaging
- National Academy of Science (NAS) Research Advisor

These examples do not meet the intent of this criterion. Serving as a conference chairperson or as advisor to a post-doctoral candidate (i.e., an NAS research advisor) do not constitute providing advice to Army, DoD, or other agency management. Research proposal review is commonly performed by all journey-level scientists. However, reviewing proposals within the scientist's directly related fields of research for his or her own or closely affiliated agencies, such as in this case, DARPA or ERDC, does not evidence the same level of recognition as if the scientist were reviewing proposals for other unrelated agencies. Regardless, this does not constitute providing *advice* to Army, DoD, or other agency management, which would imply the scientist being personally and individually consulted to assist in problem resolution or program development activities. We also note from the appellant's publication record that he has very limited contributing authorship on journal articles, raising the question of the extent to which his "advice is sought by colleagues."

- Spokesperson or primary investigator on task forces and committees extending beyond own field of specialized work principally to develop new programs, lay out long-range plans, evaluate highly controversial issues, or investigate problems in important development programs: NOT MET

The appellant provided the following examples to support crediting under this criterion:

- Served on the advisory council for the National Institute for Occupational Safety (NIOS)
- Army Research Organization (ARO) technical evaluation member for Broad Agency Announcement (BAO) review
- Member for DTRA Basic Research Program evaluation committee

- Member of review committee for Technical Review member, Leonard Wood Research Institute

Although these activities extend beyond the appellant's own specialized field, he characterizes his role on these various committees as that of "member" rather than as "spokesperson" or "principal investigator." This criterion contemplates a situation where the scientist demonstrates leadership through personally organizing and/or leading review committees, and there is no indication the appellant has participated on such committees in this capacity.

- Receives significant external awards and recognition, PM [program manager]/SES level letters of recognition from customers, or other high level personnel: NOT MET

The appellant submitted four "letters of support" from individuals he identified variously as lead research engineer (2009); senior scientist (2007); program manager (2007); and an apparent university professor (2002). Thus, only one of these letters was at the PM level of recognition and the appellant provided no further examples of "significant external awards and recognition." This is not sufficient to consider this criterion strongly met.

Since the appellant does not strongly meet any of the criteria within this block of the "Recognition" element, he may not be credited with the points associated with this block. In summary, the appellant's work has not been well-documented in the scientific literature and thus has limited external visibility, and he has not participated in the types of activities normally associated with the level of stature in the scientific community implicit in the above block of criteria. His failure to fully engage within the external scientific community through the documentation of his work and participation in broader research activities negatively impact his recognition within that larger community.

Rating Scale: 3 or 4 points

- Regular technical presentations of research or development work to professional societies or equivalent groups: NOT MET

One invited presentation within the past six years cannot be considered to constitute "regular" presentations to professional societies. This is not sufficient to consider this criterion strongly met.

- Significant documentation of technical work in publications and reports: MET

The appellant's work is fully documented in internal technical reports.

- Beginning to be sought out for consultations by other mature colleagues: MET

The appellant is consulted by and collaborates with colleagues within the relatively small Department of the Army community of scientists working in his immediate fields of research.

- Selection to serve on professional committees or equivalent groups within development specialty area: MET

The appellant's selection for the various research proposal review committees cited above is appropriately credited here.

- Is qualified to speak and deal responsibly concerning technical matters in the area of immediate specialization: MET

The appellant, by virtue of his long experience in his specialized fields, is regarded as qualified to speak and deal responsibly concerning any associated technical matters in those areas of specialization.

- Receives awards, letters of recognition from customers, high ratings on TPAs and customer surveys: PARTIALLY MET

The appellant provided the four letters of recognition cited above, but provided no other documentation relevant to this criterion. This is not sufficient to consider this criterion strongly met.

Since the appellant strongly meets at least two-thirds of the criteria within this block of the "Recognition" element (four of the six elements), he is credited with 4 points as the higher score for the block.

COMPLEXITY OF WORK

Rating Scale: 5 or 6 points

- Outstanding attainment in a broad or narrow (but intensely specialized) field of research or development: NOT MET

The appellant provided the following two examples to support crediting under this criterion:

- A lecture he presented at the NATO Advanced Study Institute in Kiev in September 2010 wherein he showed "for the first time (at least to [his] knowledge) an analytic solution that describes the physical mechanism that results in objects emitting radiation that is partially polarized..."
- A September 2005 journal article wherein he showed "experimental and theoretical results that a material that exhibits a phenomena called anomalous dispersion can emit polarized thermal emission (in the region of that dispersion) regardless of surface orientation."

There is no supporting evidence in the appellant's file to establish that these findings can be considered as "outstanding attainments." Such an attainment would have to be subjected to verification by the wider scientific community, and since the lecture the appellant presented in Kiev was not followed up by publication in a refereed journal, the substance of that lecture cannot be credited under this criterion. Similarly, the 2005 journal article has been cited only

twice in the scientific literature, and it is inconceivable that an "outstanding attainment" would not attract the attention of the appellant's peers within the field. Further, we found that although the appellant is considered to have made good progress in comparing different sensor technologies and defining their limitations, he has not produced what could be regarded as "outstanding attainments" which would demonstrate the "marked technical leadership" expected under this criterion.

- Provides critical and tangible leadership as a team leader, senior technical leader, or system leader for a major, high impact program or area: NOT MET

The appellant provided the following justification for crediting under this criterion:

While at [laboratory] I have been personally responsible for developing two distinctly different research programs from the ground up, i.e., [laboratory] Aerosol Spectroscopy Facility and the Thermal Polarimetric Laboratory. This was accomplished by writing cutting edge research proposals resulting in approximate funding of \$729k (internal grants), \$480k (external grants) and by leveraging an Army commercialization program termed the Small Business Innovation Research (SBIR) program used for novel sensor development totaling approximately \$5 million dollars to date.

This is not consonant with serving as a team leader, senior technical leader, or system leader for a major, high impact program within the meaning of this criterion. The appellant's position is that of an individual researcher. Although he works with a more junior colleague on most projects, his program cannot be construed as having the breadth or impact expected under this criterion.

- Demonstrates marked technical leadership in a specialty, with competence in gauging the extent to which state-of-art can be pushed and the technological gap bridged between imaginative concepts and practical materials, hardware, and processes: NOT MET

The only example provided by the appellant was that "the first thermal polarimetric sensor developed used my suggested spinning achromatic retarded design." His more recent work was described as making incremental improvements to the existing technology, but no major advances in the state-of-the-art that have directly resulted from his work were cited.

- Establishes requirements for workers in related fields: NOT MET

To support crediting under this criterion, the appellant cites several of his publications and posits that his techniques have become "readily accepted common practice." However, this criterion would imply situations where the scientist is a leader in a broad area of research, such that scientists in other related fields may be able to adapt the techniques developed to their work. That is, this distinguishes between the scientist whose work is confined to a narrow field of research and the scientist who makes a broad contribution that touches on other fields. There is no indication the appellant's work has had any impact or application to other fields of research beyond his own.

- Accomplishments may include identification of the technological gaps which need to be bridged between imaginative and futuristic concepts and practical materials, hardware and processes, and methods for closing gaps: NOT MET

The appellant cites his patents/research as a direct result of his ability to bridge the gap “between prior limitations and recent discoveries in the scientific literature, i.e., materials were invented that now allowed me to propose new solutions.” However, the appellant has not demonstrated the development of any practical materials, hardware, and processes that have been derived from his research; i.e., he has not identified applications for the technology developed in the laboratory. Further, although patents are a measure of novelty and inventiveness, they do not in themselves represent bridging the gap between concepts and application. Whether they serve as fundamental building blocks for further development is dependent entirely on whether they are exploited by commercial developers. The appellant has not demonstrated nor were his peers aware of any of his patents being licensed or otherwise used in production of other equipment or technology.

Since the appellant does not strongly meet any of the criteria within this block of the “Complexity of Work” element, he may not be credited with the points associated with this block. In summary, the appellant’s research does not have a strong theoretical component and considering that the development aspect of the work is done by contractors, there was some question about the overall complexity level of his work. Further, the record does not establish that his work has progressed to the stage where any concrete products or processes can be derived from the research.

Rating Scale: 3 or 4 points

- Mature, competent, and productive scientist: MET
- Leadership of a productive research team: NOT MET
- Shows ingenuity and proficiency in using complex theories, experimental and investigative techniques and methods: MET

The appellant is regarded as a fully mature and competent journey-level scientist and is proficient in the application of the complex theories and experimental techniques relevant to his work. This is sufficient to establish that the appellant strongly meets two-thirds of the criteria within this block of the "Complexity of Work" element (two of the three elements), and he is credited with 4 points as the higher score for the block.

IMPACT TO ARMY

Rating Scale: 5, 6, or 7 points

- Technical contributions are of such magnitude that other leaders in the field must take note in order to stay abreast of development in the field: NOT MET
- Number of important publications or technical reports, at least some of which have had major impact in advancing the field: NOT MET

These two elements are related in that they contemplate technical contributions or publications of such significance that other leading scientists in the field would not only be aware of them but would recognize them as major advancements in the field. Most of the appellant's peers we interviewed were aware of his general areas of research but none could identify any specific contributions or publications that they regarded as particularly significant or compelling. Further, the limited citations of the appellant's publications noted above militate against their being considered to have had a "major impact in advancing the field," i.e., the appellant could not have had the degree of impact implicit in these criteria without the associated citations in the work of others.

- Resolution of problems results in clearly evidenced innovations which are of fundamental significance in advancing new techniques or in transitioning of technologies, concepts, requirements, or understandings to Army or DoD systems: NOT MET

As support for crediting this criterion, the appellant cites the design he used in his "first generation sensor" in 2001. However, the record does not establish this or any other technology developed by the appellant has been transitioned to actual Army or DoD systems; i.e., that it has progressed beyond the laboratory to real-life application, which is the crux of this criterion. It was noted that most of the appellant's work is internally funded and that he has not been successful in developing customer programs for the technology being developed; i.e., by finding external organizations that are interested in the product and are willing to fund further development.

- Recognized as the Army's expert in the specialty field: NOT MET

There was no consensus opinion among the peer interviews that the appellant is recognized as the Army's "expert" in his fields of research by either his colleagues or by management.

- Successfully sells significant technical proposals to higher level management, or other Army/DoD/Government organizations to obtain program support: MET

During his 13 years at [laboratory], the appellant has been awarded seven Director's Research Initiative research grants and seven SBIR grants, which evidences his success in "selling" technical proposals to [laboratory] management.

Since the appellant does not strongly meet at least one-third of the criteria within this block of the "Impact to Army" element (i.e., at least two of the five elements), he may not be credited with the points associated with this block. In summary, although the appellant has been successful in selling his proposals internally, the actual research is not regarded as having been as productive as might be expected given the length of time the appellant has been working in these areas.

Rating Scale: 3 or 4 points

- One or more inventions, designs, or techniques that are of material significance in the solution of important applied problems: MET.

- Uses recent advances in science to set plans, identify approaches, postulate hypotheses, and evolve techniques and methods: MET
- Conclusions are in the form of theoretical investigations, experimental designs, and laboratory evaluations which provide the basis for significant advances and improvements in techniques and methods: MET
- Recognizes the need for and justifies supplemental work to be performed personally or by other organizational segments, laboratories, or agencies: MET
- Develops, designs, and shapes science or technology programs with other Army/DoD agencies or contractors: MET

Insofar as these criteria express activities common to any journey-level scientist position at [laboratory], and the appellant has demonstrated that these criteria fully characterize his work, he is considered to strongly meet all of the above criteria and is credited with 4 points as the higher score for the block.

Summary

<u>Factor</u>	<u>Points</u>
Recognition	4
Complexity of Work	4
Impact to Army	4

Total: 12 points

The total of 12 points on the BARS equates to pay band DB-III.

Decision

The position is correctly classified as Physicist, DB-1310-III.