

GB IPG ACTION ITEM LIST - UPDATED 5/27/02

| AI # | SHORT NAME | DESCRIPTION | PROPOSED ACTION | PROGRESS | POC | CRE DUE | STAT |
|------|--|--|--|--|-----------------|---|--------|
| 1 | RFI Database | Currently, there is no efficient means of tracking RFI in the NRQZ. | As an interim measure, high-risk RFI will be tracked manually in a spreadsheet. Eventually an automated database will need to be developed. | Jeff is maintaining a spreadsheet for high-risk RFI. John is working on an automated database. | Acree / Ford | 1/19/02 ---- 12/31/02 | open |
| 2 | Portable RFI Sniffing Setup | Preparation for RFI sniffing operations results in a scavenger hunt for equipment up and down the halls of the Jansky Lab. | A deliberate effort will be made to secure dedicated equipment for portable emissions measurement. | The following have been secured: Portable antennas, tripods, amplifiers, RF cables, adapter kit, and a high performance portable spectrum analyzer. The portable setup provides continuous coverage from DC - 18 GHz. Miscellaneous needs such as a long extension cord, cart, 250 ft. rule and laser distance finder have also been moved to the chamber area. A low-cost GPIB portable plotter was purchased and has been integrated. The intent of this action has been met. It has been closed and will not appear on the next list. | Acree / Beaudet | 1/28/02 ---- 12/31/02 | closed |
| 3 | System Controller PC at 40' | The system controller PC at the 40' is a source of RFI. | Check the PC in the chamber, bring emissions to acceptable levels if required. | The PC was tested in the chamber and failed. Emissions were reduced but not eliminated via quick-fixes. It has been requested that it be turned off when not in use. Since it would be difficult to mitigate the PC RFI further, and RFI from the PC has never shown up on a GBT RFI report and there is additional equipment at the 40 ft that may be radiating, an on-the-spot check for harmful emissions will be made. If none can be detected, this action will be closed. | Beaudet | 1/28/02 ---- 12/31/02 | open |
| 5 | Fibercom Whisperlan Transceivers | Fibercom Whisperlan Transceivers at various locations on the site are an RFI source and are a confirmed risk to the GBT. | The Fibercom Whisperlan Transceivers are going to be replaced with Centrecom switches, so no action will be taken to mitigate the Fibercoms. Action will be taken to minimize the emissions from the Centrecom units. | A prototype shielded box design for the Centrecoms has been completed and a prototype box has been built by the machine shop. The box needs minor tweaking and evaluation. Ed will install the Centrecoms sometime this summer, upon completion of the shielded boxes. | Beaudet | 1/28/02 ---- 7/31/02 | open |
| 6 | Turntable for Chamber | In order to increase the efficiency and effectiveness EMI testing in the anechoic chamber, a turntable will be required. | This can be accomplished by sharing the indoor antenna range positioner or by installing a second positioner, independent of the independent of the indoor antenna range, to one side. Both options will be explored and a decision made. | This action has evolved to a point that it no longer benefits from being on the IPG AI list. It has been closed and will not appear on the next list. | Beaudet | 1/19/02 ---- 12/31/02 | closed |
| 7 | Atmospheric Phase Interferometer (API) | The API, located in the laser building, is a RFI source and is a confirmed risk to the GBT. | Modify the API to suppress emissions to the required limits. | Filters have been added to the DC power lines and some of the sensor lines. Gasketing has been added to the RF box to reduce the 298.11 MHz leakage. The ribbon cable is still radiating, but overall emissions have been reduced significantly. Galen is looking into putting the entire system, including the PC and monitor in a RFI tight box. Also considering downsizing the system to reduce the size of the RFI tight box. An on-the-spot emissions check will be made ASAP. If harmful emissions are still making it out of the building, the matter will be pursued further, otherwise this action will be closed. The implementation of AI # 5 will also have a positive impact on this system. | Beaudet | 1/28/02 ---- 8/30/02 or 6/30/03 | open |
| 8 | Antenna Roundup | There are external antennas scattered about the site. External antennas provide a good opportunity RFI to make its way out of the buildings. | Develop a table of all on-site antennas. For each antenna, identify the, status, antenna type, location, purpose, equipment connected to it, and owner. Once completed, the table will be used for RFI sniffing and mitigation as required. | Wes has some preliminary info and he and Zach will work through all the antennas this summer. The IPG has developed an on-site antenna policy. | Sizemore | 2/19/02 ---- 8/30/02 | open |
| 10 | HVAC 43 MHz RFI | The control box for the high velocity air conditioning unit at the GBT is a source of strong and steady RFI at 43 MHz. Additional higher frequency RFI is present as well. | Since the HVAC control box is an integrated part of a larger system, it is likely that measurements and a more in-depth assessment of the problem will need to be made on location. A mitigation scheme will then be developed. Some chamber work may be involved as well. | On hold until we find out whether or not it is being replaced. | Beaudet / Niday | 2/19/02 ---- 8/30/02 | open |
| 11 | 370 MHz RFI Toward Arbovale | A March, 02 Deer Stand RFI report revealed strong RFI in the direction of Arbovale. | Use the Deer Stand to confirm that the RFI is still present and if it is still present, use the mobile monitoring station or portable test set to locate and attempt to locate the source. Follow up with mitigation if required. | Jeff and Rick will try to check this prior to the next IPG meeting. If the RFI is no longer present, this action will be closed. | Acree | 4/16/02 ---- 6/18/02 | open |
| 12 | Boltek Lightning Detector | The Boltek LD-250 lightning detector control box is a source of RF. | Develop a method of filtering the RFI from the control box. | Have parts in hand. Need to integrate and retest. | Niday | 2/19/02 ---- 6/15/02 | open |

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| 13 | FM Signal Distribution System & Antenna | Several members of the IPG believe the FM signal distribution system in the Jansky Lab is an RFI risk to the GBT. | Since the FM antenna, on the roof of the lab, that feeds the system has a mast mounted pre-amp, measurements should be taken at the antenna input terminal of the preamp. | A FM-band bandpass filter has been installed on the feed line coming down from the preamp. Measurements will still be required at the antenna or at the antenna input of the preamp. Since this action is a part of AI 8, it will not appear on the next list. | Niday | 03/19/02 ---- 8/30/02 | closed |
| 14 | DGS Laser System Data Acquisition Module | | Since this is a part of the laser metrology system, Randy will investigate and report at the next IPG meeting. He will probably roll this into his overall EMI suppression effort for the Metrology system. | Randy has this action in hand as a part of his overall metrology system RFI mitigation efforts. This action has therefore been closed and will not appear on the next list. | RM | 04/16/02 ---- | closed |
| 15 | Rotating Warning Lamps | The warning lights on the GBT are an RFI source and need to be replaced. | Work with operations to assure the new lamp style they select meets NRQZ emissions requirements. | The IPG is not involved in this action. It has been closed and will not appear on the next list. | Ford | 02/19/02 ---- | closed |
| 17 | GlobalStar, Iridium, Boeing - Connexion | It is beneficial to coordinate observation time in certain bands with Globalstar, Iridium and Boeing / Connection to minimize RFI risk. A process to accomplish this is not currently in place at GB. | Identify and implement a coordination procedure at GB that takes advantage that takes advantage of the | Jeff has discussed this with John and Phil. It has been decided that Carl Bignell or someone else from Telescope Operations will be doing the coordination. Copies of the official coordination agreements were provided to Carl and he will attend the talks at the June spectrum management school. Other coordination efforts, such as GPS-L3 will be handled the same way. This action has been closed and will not appear on the next list. | Acree | 4/18/02 ---- 6/18/02 | closed |
| 18 | Allied Telesys FS202 LAN Converter Box | Strong source of harmonic RFI with 25 MHz spacing. | Test in the Anechoic chamber. Develop an emissions profile. Need to determine whether the twisted pair or the box itself is the primary RFI contributor. | Chamber measurements show the unit's emissions exceed CCIR limits. There are ~10 of the FS-202s (mostly notebook computer hookups in the lab, two in the residence hall). More to come. Need to design a shielded enclosure. | Beaudet | 4/16/02 ---- | open |
| 18 A | Allied Telesys MR127F LAN Converter Box | Strong source of harmonic RFI with 20 MHz spacing. | Test in the Anechoic chamber. Develop an emissions profile. Need to determine whether the coax cable or the box itself is the primary RFI contributor. | Chamber measurements show the unit's emissions exceed CCIR limits. There are ~20 of the MR-127s scattered about the site. Will be phased out eventually. Need to determine the actual contribution to GBT RFI. | Acree | 4/18/02 ---- 6/18/02 | |
| 19 | Permanent Transfer HW at 140' | The electronic HW at the 140', which was permanently transferred from NSWC to NRAO - GB needs to be allocated to specific requirements and relocated. | The RFI group will move the HW required for IPG purposes to the chamber and develop a list / recommendations for John to use to determine proper allocation of the balance to the stock room, storage, other projects, etc. | Some of the equipment has been moved to the chamber. The rest will need to be cleared out by August 30, 2002 | Acree | | open |
| 21 | PBX Ground | The ground on the PBX system in the basement of the Jansky Lab is too long and is connected to the steel structure of the building. It was determined to be a source of 300-400 MHz RFI via near field probes. | A ground rod or rods will be installed directly below and will be properly bonded to the PBX system ground bus. The PBX system ground bus will be moved down to minimize distance to the rods. | Carla sent an email to Mike Holstein (4/19/02) to get the Works que to have the required ground rods installed. Looks like late June. | Beaudet | 04/16/02 ---- 6/18/02 | open |
| 22 | LAN equipment Shielding | | | This action is not being pursued by the IPG, nor is it discussed at the IPG meetings, it has therefore been closed and will not appear on the next list. | Ford | 4/16/02 ---- | closed |
| 23 | Deer Stand Emissions Check | Need to check Deer Stand for emissions and evaluate potential for self RFI. | Use portable test set to make measurements and assessment. Mitigate RFI if any is found. | An on-the-spot check for harmful emissions will be made prior to the next IPG meeting. If none are seen with the door closed, this action will be closed. | Fisher/ Beaudet | 4/16/02 ---- 12/31/02 | open |

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| NEED ADDITIONAL INFO | MAY REQUIRE ADDITIONAL INTERVENTION | ACTION COMPLETED OR NO LONGER BENEFITS FROM BEING ON THE IPG AI LIST AND WILL NOT APPEAR ON NEXT LIST |
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