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May 21, 2002

Ms. Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street SW
Washington DC 20554

Re: ET Docket No. 98-153, Ultra-Wideband Transmission Systems
Ex parte Communication

On behalf of the GPR Industry Coalition (GPRIC) and pursuant to Section 1.1206(b)(2) of the Commission's Rules, I am electronically filing this notice of an oral *ex parte* communication.

Yesterday, Peter Annan of Sensors & Software Inc., speaking for the GPRIC, and I met with Ed Thomas, Julius P. Knapp, Bruce A. Franca, Michael J. Marcus, Bruce A. Romano, Karen Rackley, John A. Reed, and Ron Chase of the Office of Engineering and Technology.

We welcomed the Commission's decision to revisit the ultra-wideband rules in the near future. We noted, however, that the current rules effectively block many needed and safe GPR applications, and pointed out that much of the GPR industry, composed of small businesses, would be unable to survive through another rulemaking cycle. We urged the Commission to consider short-term relief with respect to certain of the applicable rules, in ways that do not threaten any interference to other users.

A copy of our presentation outline is attached.

If there are any questions about this filing, please call me at the number above.

Respectfully submitted,

Mitchell Lazarus
Counsel for the GPR Industry Coalition

cc: Meeting Participants
GPRIC Members

GROUND PENETRATING RADAR INDUSTRY COALITION

Office of Engineering and Technology -- May 20, 2002

A. NEED FOR URGENT RELIEF

- The Commission plans to review ultra-wideband standards and issue a Further NPRM within 6-12 months. 1st R&O at para. 269.
- Even on this schedule, revised rules are likely to take at least 1-2 years.
 - If contested, rules could easily take 2-3 years.
- The GPR industry urgently needs interim relief.
 - Regulatory uncertainties are already impairing product sales and end-users' contracts with service customers.
 - GPR manufacturers and users are small businesses that cannot survive even a short rulemaking cycle.

B. INTERIM RELIEF WILL NOT CAUSE INTERFERENCE.

- The NPRM said: "*We believe the risk of interference from GPRs is negligible because the overwhelming majority of their energy is directed into the ground where most of the energy is absorbed. Emissions in other directions can be easily shielded without affecting the operating characteristics of the GPR. In addition, GPRs are expected to have a low proliferation and usually operate at infrequent intervals. Thus, the interference potential of these devices should be low.*" NPRM at para. 25 (emphasis added).
 - *Nothing in the 900+ submissions in the public record disputes this statement!* — this is perhaps the *only* point of agreement in the entire proceeding.
- GPRs have never caused reported interference.
- Many GPR units have an on-board GPS receiver — GPS operation is unimpaired by GPR emissions from a few centimeters away.
- Deployment density and duty cycle of GPRs are low.
- Most GPRs operate in unpopulated or lightly populated areas.

C. GPRs Do NOT INTENTIONALLY EMIT RF INTO THE AIR.

- All intentional emissions from GPRs are downward into the ground.
- GPR manufacturers deliberately suppress radiated emissions to improve resolution and minimize spurious responses that interfere with the ground signal.
- Any radiated emissions are *unintentional*.

D. RELIEF REQUESTED

1. *Marketing restrictions*

problem: The list of qualified users excludes some who need the technology (and will use it harmlessly).

- currently limited to law enforcement, fire and emergency rescue organizations, scientific research institutes, commercial mining companies, and construction companies. 47 C.F.R. Sec. 15.509(b).

interim relief: Add additional categories to capture needed users; or construe existing categories broadly.

rulemaking: Eliminate marketing restrictions as unnecessary

NOTE: *Marketing restrictions were not raised in the NPRM, and so cannot lawfully be imposed under the Administrative Procedure Act.*

2. *Coordination requirements*

problem: Delays for coordination will make many needed GPR applications impracticable.

interim relief: Identify sensitive areas (e.g., airports, radio astronomy sites) and allow pre-coordination elsewhere for unlimited use.

- The industry suggests an interim provision requiring users to keep detailed logs of time, location, and frequency of every operation.

rulemaking: Eliminate coordination as unnecessary.

NOTE: *Coordination requirements were not raised in the NPRM, and so cannot lawfully be imposed under the Administrative Procedure Act.*

3. Emissions and 10 dB rule

problem: FCC rules *disqualify* a “shallow” emissions profile even if it is tens of dB below the emissions mask.

interim relief: Approve emissions under the current mask despite 10 dB points over 960 MHz.

rulemaking: Relax emissions mask.

NOTE: *There is no evidence in the public record to justify GPR emissions limits below Class B.*

E. FORMS OF SHORT-TERM RELIEF

- GPRIC seeks to consult with OET on feasible forms of short-term relief.

GPR APPLICATIONS

Area	Application
Agriculture	Soil classification
	Drainage pipe location
	Root evaluation
	Soil compaction
	Water content measurement
Airports	Base course under runway thickness
	Cavities under runways
	Compaction of base course
	Concrete base/rebar evaluation
	Locate buried conduits/utilities
	Qualify cracks within road/runway
	Locate drainage/culverts
	Perimeter security – tunnels etc.
	Ice thickness on winter landing stripss
	Moisture content of base course
	Runway pavement quality/thickness
	Pavement watercontent and density
	Buried storage tanks
	Thickness QA/QC
	Voids under road/runway
Terminal floorl imaging	
Terminal and parking floop thickness	
Archeology	Locate buried artifacts
	Delineate Foundations/Areas of construction
	Locate graves
	Image Monuments
	Sub-bottom profiling
Ancinet building Wall/Floor mapping	
Bridges	Deck debonding/delamination
	Pavement thickness
	Pier quality and pier evaluation
	Pier scour/erosion
	Rebar corrosion
Rebar location	

	Geology for Location planning
	Locate tension member
	Locate voids in concrete
	Check for wood rot
Building Inspection (often essential in hospitals)	Cavities in concrete
	Cavities under floors
	Locate embedded conduits/utilities
	Facing stone integrity
	Test foundations & footings integrity
	Locate post tensions cables
	Concrete thickness
Dam Inspection	Concrete quality/curing
	Conduit location
	Cracks/fractures
	Grout monitoring
	Leak detection
	Rebar corrosion
	Rebar distribution
	Tension member mapping
	Voids within/beneath concrete
	Wall thickness
Environmental Assessment	Find buried tanks/barrels
	Locate contaminant presence/flow
	Geology & strata mapping
	Identify leaking tanks/pipes
	Monitoring change with time
	Locate trench/excavation/disturbed soil
Forensics/Police	See archaeology also
	See building inspection also
	Buried bodies location
	Buried objects location
	Cavities in walls
	Cavities under floors
	Concrete structures
	Disturbed soil
	Wall imaging
	Wall thickness

Construction	Depth to rock
	Locate geologic faults
	See groundwater also
	Evaluate slurry wall
	Soil stratigraphy
	Voids/karst
Groundwater	Locate Contamination
	Fracture mapping
	Define fresh water intrusion
	Remediation monitoring
	Salt water intrusion
	Stratigraphy
Nuclear Power Plants	See building inspection
	Concrete quality/curing
	Conduit location
	Radiactive contaminant disposal
	Cracks/fractures in walls
	Leaking tanks/barrels
	Rebar corrosion
	Rebar distribution
	Tension member mapping
	Voids within/beneath concrete
Ice/Snow	Avalanche prediction/monitoring
	Avalanche victim location
	Frazil ice and ice jams
	Glacier/sheet mapping
	Ice thickness rivers/lakes/sea
	Snow thickness - ski resorts
	Snow thickness - water content
	Through-ice bathymetry
Military	Landmine detection
	Motion sensor
	Terrain trafficability
	Tunnel detection
	UXO detection
Mineral extraction & Mining	Crown pillar evaluation
	Crystal location
	Hazard/soft rock/water/fracture

	Locating surface drillholes
	Mining machine guidance
	Nuclear waste disposal
	Ore delineation
	Placer exploration
	Stope detection
	Vein/high grade locate
Pipe/Sewer Inspection	Leaks location
	Liner evaluation
	Pipe Integrity
	Trenching around
	Voids/outside
Rock Quarrying	Rock integrity (prior)
	Rock quality (post)
	Old stope detection
	Slope stability
Railroad Integrity & safety	Ballast condition/compaction
	Ballast quality
	Base material/quality
	Bridge structure integrity
	Depth to bedrock
	Hazards ahead/around (pre)
	Karst
	Pipe/cable/culvert
	Route selection (pre)
	Tie inspection
	Void depth/location
	Voids behind liner (post)
Commercial Real Estate	Buried tanks/barrels
	Cavities in walls
	Cavities under floors
	Conduits/utilities locate
	Contaminant presence/flow
	Facing stone integrity
	Leaking tanks/barrels
	Structural elements
	Stud finder
	Termite inspection

	Trench/excavation/disturbed soil
	Concrete structure assessment
Roads & Highways	Base course thickness
	Compaction of base course
	Concrete base/rebar
	Cracks within
	Drainage/culverts
	Karst and sinkhole location
	Moisture content of base course
	Pavement quality
	Pavement thickness/delamination
	Rebar/tension members within
	Route selection
	Thickness QA/QC
	Void depth/location
Security/Customs/Immigration	Embassy security
	Hidden materials
	People detection
	Tunnel detection
Trenchless Utility Installation	Bedrock location
	Guidance
	Karst
	Obstacle/old foundations
	QA/QC
	Route selection
	Utility location
	Void depth/location
Road,railway & pipeline tunneling	Depth to bedrock
	Hazard ahead/around (pre)
	Karst
	Route selection (pre)
	Void depth/location
	Voids behind liner (post)
Buried Utility/Pipes	Concrete P&C locates
	Electrical/telephone/cable
	Fiber optics
	Leak location
	Metal P&C locates

	Plastic P&C locates
	Route selection
Wooden structure inspection	Beam integrity
	Bridge structure
	Live tree rot/quality
	Railway ties
	Termite inspection
	Water content
	Wooden telephone pole assessment

