EXHIBIT 1

Program of Research and Experimentation

Applicant files this application to modify this experimental license to add additional testing locations to be used for predeployment testing in the 3.7 GHz band with various equipment manufacturer partners. Applicant requests this experimental authorization be extended to the proposed, listed locations to use the 3.7-3.8 GHz band on a temporary basis. Applicant's wireless affiliate was awarded licenses in this band in FCC Auction 107, and this experimental authorization will permit crucial testing activities to take place at additional locations for which data is needed.

Testing will occur indoors and outdoors, pursuant to the technical parameters outlined in the attached Form 442 and attached spreadsheet. Applicant has identified the nearest earth stations and will coordinate operations under the experimental authorization with those earth station operators to avoid potential disruption to their operations. Applicant will immediately cease transmissions if those operators experience interference. In addition, Applicant will cease operations upon notice by any Auction 107 winning bidder that they plan to initiate operations in the relevant area pursuant to their Auction 107 licenses in the relevant areas.

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					0	300	55	С							
Trees, additional building	5.26	154.99	23.47	~	0	180	Si	σ.	~	Monopole	컺	Dallas	Coppell	200 East Beltline Road	5
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Trees, additional building	3.07	429.79	22.86	*	0	128	8	80	~	Monopole	컺	Dallas	Dallas	1707 x Street	9
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Trees, additional building	0.62	557.74	35.06	¥	0	128	8	8	~	Self Support	¥	Denton	Little Elm	14197-A King Road	6
					0	248	8	С							
Trees, additional building	3.27	429.79	23.17	~	0	128	8	æ	~	Monopole	컺	Dallas	Dallas	2146 California Crossing	5
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					0	248	8	С							
Trees, additional building	3.64	429.79	21.64	~	0	128	55	8	~	Moncpole	컺	Dallas	Dallas	2030 Walnut Hill	2
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					0	248	8	С							
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structures (e.g. hills, trees, water tanks,	-	ground at antenna		structure or	Orientation in vertical	horizontal plane	Width of beam at	Sector	Antenna?	Structure Type	State	County	City	Address	Site
List natural formation or existing man-made	Distance to	Elevation of	Height above	>6m above		Orientation in			Directional						
Answer Below if "Yes" to Antenna Extend > 6M Above Structure or Ground	o Antenna Extend >	wer Below if "Yes" t	Ans	Antenna Extend	ional Antenna	Answer Below If "Yes" to Directional Antenna	Answer Be								
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Trees, additional building	4.41	135.99	35.05	~	0	128	65	В	۲	Utility	₹	Dallas	Coppell	769 MacArthur Drive	18
					0	80	65	A							
					0	248	65	С							
Trees, additional building	3.40	160.99	30.78	~	0	128	65	В	4	Stealth Pole	₹	Dallas	Irving	7650 Esters Boulevard	17
					0	80	65	A							
					0	220	65	С							
Trees, additional building	2.03	129.99	29.87	~	0	110	65	8	Υ	Utility	₹	Dallas	Irving	6306 North O'Connor	16
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					0	248	65	C							
Trees, additional building	3.40	154.99	19.51	~	0	138	65	В	٧	Utility	¥	Dallas	Irving	3551 Cabell Drive	15
					0	18	65	A							
					0	300	65	С							
Trees, additional building	2.94	165.99	29.87	4	0	180	65	В	4	Utility	컺	Dallas	Coppell	859 Hackberry Road	14
					0	60	65	A							
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Trees, additional building	3.67	148.99	28.04	4	0	128	65	В	Υ	Self Support	컺	Dallas	Irving	1705 Peters Road	13
					0	0	65	A							
					0	248	65	С							
Trees, additional building	3.15	157.99	38.71	~	0	128	65	В	٧	Rooftop	¥	Dallas	Irving	4150 North MacArthur Boulevard	12
					0	80	65	A							
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aircraft.	km)	(meters)	Meters)	(N/Y)	ionzonarj	North)	polit (ill deglees)								
towers) that woud shield antenna from	landing area (in	site (AMSL)	antenna tip (in	ground?	7	(degrees from true	circ iaii-powei		(Y/N)						
structures (e.g. hills, trees, water tanks,	nearest aircraft	2	ground to	structure or	niane (degrees from	horizontal plane	Width of beam at	Sector	Antenna?	Structure Type	State	County	City	Address	Site
List natural formation or existing man-made	Distance to	Elevation of	Heightabove	>6m above		Orientation in			Directional						
Answer Below if "Yes" to Antenna Extend > 6M Above Structure or Ground	o Antenna Extend >	swer Below if "Yes" t	An.	Antenna Extend	tional Antenna	Answer Below If "Yes" to Directional Antenna	Answer Be								

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Site	Address	City	County	State	Structure Type	Directional Antenna?	Sector	Width of beam at the half-power		Orientation in vertical plane (degrees from	>6m above structure or		Elevation of ground at antenna		List natural formation or existing man-made structures (e.g. hills, trees, water tanks,
						(N/A)		point (in degrees)	(degrees from true North)	horizontal)	ground? (Y/N)	antenna tip (in Meters)	site (AMSL) (meters)	landing area (in km)	towers) that woud shield antenna from aircraft.
ollin, Dalla	Collin, Dallas, Denton County, Texas Stations														
							Þ	65	32	0					
21	2005 North Britain Road	living	Dallas	×	Monopole	*	80	65	147	0	4	29.56	157.99	1.57	Trees, additional building
							С	65	262	0					
							Д	65	00	0					
22	1305 Wrangler Drive	Coppell	Dallas	×	Monopole	~	80	65	128	0	Υ	13.72	160.99	5.19	Trees, additional building
							С	65	248	0					
							А	65	8	0					
23	13398 Dynamo Drive	Coppell	Dallas	×	Utility	~	8	65	128	0	4	32	157.99	2.60	Trees, additional building
							С	65	248	0					
							Д	65	80	0					
24	2990 Regent Boulevard	living	Dallas	×	Utility	~	80	65	128	0	Υ	33.53	155.99	3.08	Trees, additional building
	1						C	65	248	0					
							А	65	8	0					
25	1413 Walnut Hill Lane	living	Dallas	×	Monopole	~	80	65	128	0	Y	35.05	146.99	2.87	Trees, additional building
							n	65	248	0					
							Þ	65	00	0					
26	1231 Greenway Drive	living	Dallas	×	Building	~		65	128	0	4	44.5	133.99	1.72	Trees, additional building
							n	65	248	0					
							Þ	65	8	0					
27	1901 Darr Street	living	Dallas	×	Monopole	~		65	128	0	Υ	29.26	150.99	3.99	Trees, additional building
							n	65	248	0					
							Þ	65	∞	0					
28	1031 West Rochelle Road	living	Dallas	×	Monopole	~	8	65	128	0	4	23.16	161.99	1.24	Trees, additional building
							n	65	248	0					
							Þ	65	8	0					
29	820 West Walnut Hill Lane	living	Dallas	×	Rooftop	~	В	65	128	0	4	18.59	141.99	2.04	Trees, additional building
							С	65	248	0					
							Д	65	8	0					
30 45	4545 West John Carpenter Freeway	Wing	Dallas	X	Rooftop	~		8	128	0	Υ	21.33	163.99	3.46	Trees, additional building
							n	65	248	0					
							А	65	0	0					
멆	105 Decker Drive	living	Dallas	×	Building	~	8	65	120	0	4	48.77	141.99	3.72	Trees, additional building
)	'n	240	•					

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Site	Address	City	County	State	Structure Type	Directional Antenna? (Y/N)	Sector	Width of beam at the half-power point (in degrees)	Orientation in horizontal plane (degrees from true North)	Orientation in vertical plane (degrees from horizontal)	>6m above structure or ground? (Y/N)	Height above ground to antenna tip (in Meters)	Elevation of Distance to ground at antenna nearest aircraft site (AMSL) landing area (in (meters) km)	Distance to nearest aircraft landing area (in km)	List natural formation or existing man-made structures (e.g. hills, trees, water tanks, towers) that would shield antenna from aircraft.
San Diego	San Diego County, California Stations														
							Α	65	55	0					
ь	9920 Pacific Heights Blvd	San Diego	San Diego	B	Rooftop	~	œ	65	SS	0	ч	5.46	21.18	5.6	Trees, additional building
							C	65	55	0					
							Α	65	0	0					
2	9605 Scranton Road	San Diego	San Diego	S	Rooftop	~	В	<u>65</u>	90	0	٧	10.96	35.97	6.3	Trees, additional building
							C	65	220	0					
							Α	65	30	0					
သ	6925 Lusk Boulevard	San Diego	San Diego	S	Rooftop	~	В	65	150	0	Υ	3.67	12,04	7.01	Trees, additional building
							С	65	270	0					
							Α	65	60	0					
4	6255 Ferris Square	San Diego	San Diego	S	Building	~	ъ	65	200	0	ч	2.00	7.11	4.3	Trees, additional building
							С	65	320	0					
							Α	65	0	0					
5	8970 Crestmar Point	San Diego	San Diego	S	Building	~	В	65	120	0	Υ	4.61	15.12	3.18	Trees, additional building
							С	65	240	0					
							Α	65	80	0					
6	6580 Mira Mesa Boulevard	San Diego	San Diego	S	Rooftop	~	В	65	215	0	Υ	3.55	11.64	4.9	Trees, additional building
							С	65	315	0					
Santa Clar	Santa Clara, California Stations														
1	13686 Quito Rd	Saratoga	Santa Clara	Q	Utility	γ	В	65	280	0	γ	18.29	85.00	11.33	Trees, additional building
							Α	65	60	0					
	1968 LEGHORN STREET						В	65	300	0					
2		Mountain View	/ Santa Clara	Q	Monopole	γ	С	65	180	0	Υ	9.14	4	3.52	Trees, additional building
							A	65	20	0					
	1190 SARATOGA AVENUE						ш	65	260	0					
ယ		San Jose	Santa Clara	S	Rooftop	4	С	65	140	0	Y	13.26	57	7.63	Trees, additional building

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City County Cou						0	10	65								
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City County State						0	0	65	ъ							
City County Cou						0	240	65	0							
City County State County Coun	Trees, additional building	3.5	234	31.48	4	0	120	8	œ	~	Monopole	₹	Oakland	Birmingham	300 Strathmore	10
City					•	0	0	65	Þ							
City County Maconi						0	240	65	0							L
City City County County Sale Studius Type Animana Series City	Trees, additional building	2	234	34.53	*	0	120	65		~	Rooftop	3	Oakland	Birmingham	401 South Old Woddward Avenue	
City					•	0	0	8	ъ							
City County Cou						0	230	65	0							L
City County State Stucture Type Orientation in the National Sector CryAy State Stucture Type Orientation in the National Sector Orientation in the National Part Orientat	Trees, additional building	4.6	226	27.21	~	0	120	65		~	Monopole	₹	Oakland	Birmingham	1566 South Cranbrook Road	00
City County State Stucture Type Anierina Stucture Type Methid-jower Methid-jower Type					•	0	0	65	Þ							
City County State Stucture Type Orientation in vertical structure or ground to ground to structure or ground to or						0	245	65	0							L
City County State County State County Count	Trees, additional building	00 00	277	37.58	~	0	115	65		~	Monopole	₹		Bloomfield Hills	4200 Telegraph Road	7
Animal Series Animal Serie					•	0	355	65	Þ							
City County State Stat						0	240	65	0							
Anisara Section Anisara Se	Trees, additional building	2.3	229	32.09	4	0	120	S	œ	~	Water Tank	₹	Oakland	Beverly Hills	16111 West 14 Mile Road	on .
Animal Series Animal Serie					•	0	0	65	Þ							
Anisara Section Anisara Se						0	235	65	C							
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Answer Below II *vgs* to Directional Antenna Series Antenna S						0	355	65	Þ							
Answer Beverly Hills Clay County State Structure Type Answer Structure Type Answer Clay Answer County Answer C						0	270	65	0							L
Answer Below II *ves* to Directional Antenna Seried Answer Below II *ves* to Directional Antenna Seried	Trees, additional building	4.4	220	25.38	~	0	130	8		~	Monopole	₹	Oakland	Beverly Hills	18600 West 13 Mile	4
Answer Beverly Hills Carry Car						0	0	65	Þ							
Answer Below II "Yes" to Directional Antenna Section Answer Below III "Yes" to Directional Antenna Section Antenna Section Antenna Section Orientation in vertical Section Splane (Regines from the half-power (V/N) Footenisted Hills Rosewille Rosew						0	240	65	С							
Answer Below II "Yes" to Directional Antenna Setend Answer Below II "Yes" to Directional Antenna Setend Antenna Setend Orientation in vertical Sembove Height above ground to element spanne (degrees from Yes) Indicate the half-power (degrees from Yes) Antenna Setend II orientation in vertical structure or the half-power (degrees from Yes) National Directional Jalmen Orientation in vertical structure or pound to ground to element plane (degrees from Yes) Indicate the half-power (degrees from Yes) National Directional Antenna Setend Orientation in vertical structure or pound to ground to element plane (degrees from Yes) Indicate the half-power (degrees from Yes) National Directional Antenna Setend Orientation in vertical structure or ground to ground at antenna tip (in site (AMS)) National City (YiAI) National City (Orientation in vertical structure or pound to ground at antenna tip (in site (AMS)) National City (ViAI) National City (ViAI) National City (Orientation in vertical structure or pound to ground at antenna tip (in site (AMS)) National City (ViAI) National City (ViAI) National City (Orientation in vertical structure or pound to ground at antenna tip (in site (AMS)) National City (ViAI) National City (Orientation in vertical structure or pound to ground at antenna tip (in site (AMS)) National City (ViAI) National City (ViAI) National City (Orientation in vertical structure or pound to ground at antenna tip (in site (AMS)) National City (ViAI) National City (V	Trees, additional building	6.2	223	40.31	~	0	120	65	ω	~	Monopole	₹	Oakland	Beverly Hills	21707 West 14 Mile Road	ω
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Answer Below II "Yes" to Directional Antenna Select Answer Below II "Yes" to Directional Antenna Select Antenna Selection Orientation in vertical Structure or ground to ground at antenna tip (in degrees from young area (in meters) National Roseville Matomb Mt Moropole 7 A 65 0 0 0 7 Y 29-26 12700 18700 2010 2010 2010 2010 2010 2010 2010 2	Trees, additional building	5.4	243	33.92	4	0	120	65	00		Stealth Structur	₹		Bloomfield Hills	470 Church Road	2
Answer Bellow II "Yes" to Directional Antenna Stelend Answer Bellow III "Yes" to Directional Antenna Stelend Antenna Stelen						0	0	8	Þ							
Answer Below if "Yes" to Directional Antenna Eden if "Yes" to Directional Eden if "Yes" to Directional Antenna Eden if "Yes" to Directional Eden if "Yes" to	Trees, additional building	10.50	187.00	29.26	Υ	0	0	65	Д	Y	Monopole	×	Macomb	Roseville	17971 Eleven Mile Road	1
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Address City County State Structure Type Antenna's Sector Hybridge Ant	towers) that woud shield antenna from	landing area (in	site (AMSL)	antenna tip (in	ground?	plane lackices incil	(degrees from true	cie iai-powei	_	3/8						_
Answer Below II "Yes" to Directional Antenna Extend Antenna Extend Antenna Extend Antenna Extend Antenna Extend Orientation in Serr above Height above Height above	structures (e.g. hills, trees, water tanks,	nearest aircraft	ground at antenna	ground to	structure or	Orientation in vertical	horizontal plane				Structure Type	State	County	City	Address	Site
Antenna Extend	List natural formation or existing man-made	Distance to	Elevation of	Height above	>6m above		Orientation in		onal	Direction						
	- biyi Above Structure of Ground	to Antenna Extend >	SWELBEIOW IT JES	A	Antenna Extend	cional Antenna	PIOW IT YES TO DIFEC	Answer								